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PERCEIVED EMOTIONAL COMPETENCE AND EMOTION APPRAISAL SKILLS IN MIDDLE CHILDHOOD IN TYPICALLY DEVELOPING AND BEHAVIOURALLY CHALLENGED CHILDREN

A thesis submitted to Middlesex University
in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

This thesis addresses whether children with severe behavioural problems lack emotional competence in key areas and, if so, whether this is reflected in their ability to appraise emotions in others. Self-rated and objectively rated emotional competence of children in mainstream schooling was compared with 20 children aged seven to 11 excluded for severe social, emotional and behavioural difficulties. In Study 1 self-report questionnaires measured affect perception, empathy and expressivity in typically developing (N=203), special educational needs (N=36) and socially, emotionally and behaviourally disordered (N=30) children in mainstream schooling. Younger children were less perceptive of affect than older children and scored lower for cognitive empathy. Boys scored lower in cognitive and affective empathy than girls and were less intimate, and more covert, in their expression of emotion. Special educational needs children appeared less emotionally perceptive than their peers. In Studies 2a and 2b, affect appraisal and the ability to describe emotional change were examined using a new measure employing pictorial representations of children in ambiguous postures and facial representations of emotion. Typical patterns of appraisal of possibly threatening, depressive and innocuous postures were established (N=242). A developmental progression in reasons given for emotional change was seen with older children providing more socially based and mentalising answers than younger children. Study 3 developed an interactive computerised measure to examine the point at which children recognise the emergence of emotion from an interpolation of photographic facial expressions. Eighty-five typically developing children manipulated 26 emotional changes, including emotion/emotion and emotion/neutral transitions and chose a point of uncertainty in the transformation. A significant effect was found for facial representations of fear and anger, indicating a threat detection mechanism in response to emergent emotion. In Study 4 children with severe behavioural problems were compared across all measures with typically developing children from the first three studies. Behaviourally challenged children were deficient in cognitive and affective empathy and exhibited a hostile appraisal bias when assessing ambiguous postures of other children. No deficit was found in the ability to evaluate emotional change and provide age-appropriate reasons. However, anger was dominant in the perception even over fear stimuli when assessing emotional transition. Overall, children excluded from mainstream schooling with severe behavioural problems showed a very different profile to mainstream children with behavioural problems, suggesting a qualitative difference in cognitive functioning that could have a predictive function. This thesis not only supports the premise that severe SEBD children exhibit altered emotional functioning but has developed a series of tests that will have ongoing value in applied research.

TABLE OF CONTENTS

PRELIMINARY PAGES:

ABSTRACT	I
-----------------------	----------

TABLE OF CONTENTS	II
--------------------------------	-----------

LIST OF TABLES	viii
----------------------	------

LIST OF FIGURES	ix
-----------------------	----

ABBREVIATIONS	x
---------------------	---

PREFACE	XI
----------------------	-----------

MAIN THESIS:

CHAPTER 1: INTRODUCTION	1
--------------------------------------	----------

1.1. EMOTIONAL COMPETENCE.....	2
---------------------------------------	----------

1.1.1. Theoretical Roots	3
--------------------------------	---

1.1.2. A Competence or an 'Intelligence'	5
--	---

1.1.3. Clarifying the Concept for this Thesis.....	7
--	---

1.1.4. Measuring Competencies	9
-------------------------------------	---

1.1.5. Emotional Competence and Educational Consequences	11
--	----

1.1.6. Emotional Competence and Behavioural Problems	14
--	----

1.1.7. Theoretical Model of Emotional Competence	16
--	----

1.2. EXPLORING EMOTIONAL COMPETENCE IN CHILDREN.....	19
---	-----------

1.2.2. Emotional Competence and Emotional Development.....	19
--	----

1.2.3. Perception as a Key Competency.....	20
--	----

1.2.4. Empathy as a Key Competency	23
--	----

1.2.5. Emotional Expressivity as Key Competency	29
---	----

1.3. BEHAVIOURAL PROBLEMS IN SCHOOLS.....	34
--	-----------

1.3.1. A Rise in Problem Behaviour	34
--	----

1.3.2. Disruptive Behaviour: Different Perceptions	35
--	----

1.3.3. Perception and Emotion Appraisal.....	40
--	----

1.4. THE RESEARCH QUESTION OF THIS THESIS	43
--	-----------

1.4.1. Hypotheses for the Thesis.....	44
---------------------------------------	----

1.5. ORGANISATION OF THESIS	50
--	-----------

CHAPTER 2: METHODOLOGICAL ISSUES	51
---	-----------

2.1. CHOICE OF SAMPLE.....	51
-----------------------------------	-----------

2.2. CLASSIFICATION OF CHILDREN.....	53
---	-----------

2.3. PRIMARY PROVISION FOR CHILDREN WITH SPECIAL NEEDS	56
2.3.1. Defining Behavioural Problems.....	57
2.3.2. Encouraging Socially Desirable Behaviour Within the School System	59
2.4. CHOICE OF TESTS.....	60
2.4.1. Emotional Competence	60
2.4.2. Emotion Appraisal and Appraisal of Transition of Emotion	61
 CHAPTER 3: STUDY 1: SELF-REPORT OF EMOTIONAL COMPETENCE	 63
3.1 INTRODUCTION.....	63
3.1.1. Perception (Affective Perception Test for Children: APT-C).....	63
3.1.2. Empathy (Index of Empathy for Children and Adolescents: IECA)	64
3.1.3. Expression (Emotional Expressivity Questionnaire for Children: EEQ-C)	65
3.1.4. Overall Emotional Competence	65
3.1.5. Overall Aims of Study 1.....	66
3.2. METHOD.....	67
3.2.1. Design and Preparation of Materials	67
3.2.2. Participants	75
3.2.3. Procedure.....	77
3.3. RESULTS.....	82
3.3.1. Investigation of Structure	82
3.3.2. Sample Statistics	90
3.3.3. Correlation of Questionnaires	92
3.3.4. Inferential Analysis of Questionnaires	95
3.3.5. Testing the Theoretical Model of Emotional Competence	100
3.3.6. Emotional Competence in TD Children	112
3.4. DESIGN CONSIDERATIONS: RELIABILITY OF THE TEST.....	113
 CHAPTER 4: STUDY OF EMOTION APPRAISAL: RATIONALE AND METHODOLOGY	 114
4.1. RATIONALE FOR STUDY OF EMOTION APPRAISAL	114
4.1.2. Overall Aims of Studies 2a and 2b.....	115
4.2. METHODOLOGY FOR STUDY OF EMOTION APPRAISAL	116
4.2.1. Design and Preparation of Materials for Two Studies.....	116
4.2.2. Participants	117
4.2.3. Procedure.....	117
4.3. SAMPLE STATISTICS AND FEEDBACK FOR STUDIES 2A AND 2B.....	119
4.3.1. Sample Statistics	119
4.3.2. Feedback on Activity	120

CHAPTER 5: STUDY 2A: APPRAISAL OF AFFECT IN OTHERS USING WHOLE BODY PRESENTATIONS	121
5.1. INTRODUCTION.....	121
5.1.1: Investigation of bias in appraisal of affect.....	121
5.1.2. Measuring appraisal of affect using whole body presentations.....	122
5.2. METHOD.....	123
5.2.1. Choice of Postures	123
5.2.2. Ambiguity Considerations	124
5.2.3. Forced Choice Appraisal	127
5.2.4. Intentionality: an Action Tendency in Appraisal	129
5.2.5. Body Postures: Scoring and Analysis.....	130
5.3. RESULTS.....	133
5.3.1 Raw Categories – Ratings of General Affect.....	133
5.3.2 Inferential Analysis: 6 Category Scale	135
5.3.3. Intentionality – Item Analysis of Intentional Appraisals	138
5.3.4. Confidence in Choice	140
5.4. DESIGN CONSIDERATIONS: CHOICE OF POSTURES	141
 CHAPTER 6: STUDY 2B: APPRAISAL OF FACIAL EMOTION AND REASONS FOR EMOTIONAL CHANGE	 142
6.1. INTRODUCTION.....	142
6.1.2. Measuring Appraisal of Facial Emotion and Reasons for Change	143
6.2. METHOD.....	145
6.2.1. Ascribing Emotion to Faces.....	145
6.2.2. Emotional Reasons: Development of Scoring System	149
6.2.2. Emotional Reasons: Analysis	152
6.3. RESULTS.....	153
6.3.1. Judging Emotion in Faces.....	153
6.3.2. Attributing Reasons for Emotional Change	154
6.4. DESIGN CONSIDERATIONS: VALIDITY OF THE TEST	156
 CHAPTER 7: STUDY 3: APPRAISAL OF EMOTIONAL TRANSITION IN FACES..	 157
7.1. INTRODUCTION.....	157
7.1.1. The Perception of Emotional Change.....	158
7.1.2. Persistence of Emotion: Consistency and Hysteresis	160
7.1.3 Overall Aims of Study 3.....	165

7.2. METHOD.....	166
7.2.1. Design and Preparation of Materials	166
7.2.2. Participants	171
7.2.3. Procedure.....	172
7.2.4. Scoring and Data Analysis	175
7.3. RESULTS.....	180
7.3.1. Sample Statistics	180
7.3.2. Consistency	184
7.3.3. Persistence of Different Emotions.....	188
7.3.4. Viewing Angry and Fearful Faces	189
7.4. DESIGN CONSIDERATIONS: METHODOLOGY OF TEST.....	192
7.4.1. Design of Interface	192
7.4.2. Use of Prompts in Handling the Media	192
 CHAPTER 8: STUDY 4 - EMOTIONAL COMPETENCE AND APPRAISAL ABILITIES OF CHILDREN WITH SEVERE BEHAVIOURAL PROBLEMS	 193
8.1. INTRODUCTION.....	193
8.1.1. Emotional Competence in Behaviourally Challenged Children	193
8.1.2. Emotion Appraisal in Behaviourally Challenged Children: Postures.....	194
8.1.3. Emotion Appraisal in Behaviourally Challenged Children: Faces	194
8.1.4. Recognition of Emotional Transition in Behaviourally Challenged Children	195
8.1.5. Other considerations for Behaviourally Challenged Children	196
8.1.6. Overall Aims of Study 4.....	197
8.2. METHOD.....	199
8.2.1. Design and Preparation of Materials	199
8.2.2. Participants	203
8.2.3. Procedure.....	205
8.3. RESULTS.....	209
8.3.1. Questionnaire Pack – Study 1: Emotional Competence	209
8.3.2. Picture Pack – Study 2 Emotional Appraisal	214
8.3.3. MORPHO – Study 3: Emotional Transition	219
8.3.4. Further Analyses	228
 CHAPTER 9: DISCUSSION	 234
9.1. EMOTIONAL COMPETENCE.....	234
9.1.2. Typically Developing Children.....	234
9.1.2. Theoretical Model of Emotional Competence	239
9.1.3. Behaviourally Challenged Children	243

9.2. EMOTIONAL APPRAISAL	249
9.2.1. Appraisal of Affect in Postures in TD Children.....	249
9.2.2. Appraisal of Affect in Postures in BC Children.....	251
9.3. APPRAISAL OF EMOTIONAL FACES AND REASONS FOR EMOTIONAL CHANGE ..	255
9.3.1. Appraisal of Facial Emotion in TD Children	255
9.3.2. Appraisal of Facial Emotion in BC Children	259
9.4. APPRAISAL OF EMOTIONAL TRANSITION	261
9.4.1. Appraisal of Transition in TD Children.....	261
9.4.2. Appraisal of Transition in BC Children.....	266
9.5. LINKS BETWEEN BEHAVIOUR AND SCORES IN BC CHILDREN.....	271
9.6. LIMITATIONS AND RECOMMENDATIONS CONCERNING CURRENT STUDIES.....	273
9.6.1. Emotional Competence	273
9.6.2. Emotional Appraisal.....	276
9.6.3. Emotional Transition.....	279
9.7. CONCLUSION	281
REFERENCES	283
APPENDICES	307
<u>APPENDIX 1: INTRODUCTION AND STUDY 1.....</u>	308
1.1. ETHICAL APPROVAL	
1.2. CONSENT AND INFORMATION SHEETS	
1.3. CLASSIFICATION AND CATEGORISATION OF CHILDREN WITH SPECIAL NEEDS	
1.4. NOTES FOR TEACHERS	
1.5. STANDARDISED INSTRUCTIONS	
1.6. QUESTIONNAIRE PACK	
1.7. EEQ SELF-RESPONSE QUESTIONNAIRE – KING 1970	
1.8. STANDARDISING FUTURE SCORES USING NORMS FROM STUDY 1	
1.9. FACTOR ANALYSIS OF QUESTIONNAIRE PACK	
1.10. SPREAD OF SCORES FOR EMOTIONAL COMPETENCE	
1.11. ANALYSIS – STUDY 1	
<u>APPENDIX 2: STUDIES 2A AND 2B</u>	355
2.1. ETHICAL APPROVAL	
2.2. CONSENT AND INFORMATION SHEETS	
2.3. STANDARDISATION OF EMOTIONAL FACES FOR STUDY 2B	
2.4. VIGNETTES OF EMOTIONAL CHANGE FROM TYPICALLY DEVELOPING SAMPLE	
2.5. NOTES FOR TEACHERS	
2.6. SUPPLEMENT FOR TEACHING STAFF	
2.7. STANDARDISED INSTRUCTIONS	
2.8. CHILDREN’S PICTURE PACK	
2.9. SAMPLE ANALYSES STUDY 2	
2.10. STUDY 2A – DESCRIPTIVE DATA ON CHOICE OF AFFECT ACROSS ALL 8 CATEGORIES	
2.11. ANALYSIS OF STUDY 2A - EMOTION IN POSTURES	
2.12. ANALYSIS OF STUDY 2B – EMOTIONAL FACES AND REASONS FOR CHANGE	

APPENDIX 3: STUDY 3 398

- 3.1. REQUEST FOR ETHICAL APPROVAL
- 3.2. CONSENT AND INFORMATION SHEETS
- 3.3. MORPHO INSTRUCTIONS FOR CHILDREN
- 3.4. MORPHO TRANSITIONS BY PICTURE
- 3.5. GRAPHICAL REPRESENTATION OF TRANSITIONS
- 3.6. ANALYSIS – TRANSITION OF EMOTION

APPENDIX 4: STUDY 4 424

- 4.1. ETHICAL APPROVAL
- 4.2. CONSENT AND INFORMATION SHEETS
- 4.3. TOKEN ECONOMY SYSTEM
- 4.4. DESCRIPTORS
- 4.5. MEREDITH BEHAVIOURAL INDICATOR
- 4.6. ISSUES REGARDING READING AGE OF SAMPLE
- 4.7. GRAPHICAL REPRESENTATION OF POSTURES
- 4.8. GRAPHICAL REPRESENTATION OF REASONS FOR EMOTIONAL CHANGE
- 4.9. ANALYSIS: QUESTIONNAIRE PACK
- 4.10. ANALYSIS: PICTURE PACK
- 4.11. ANALYSIS: MORPHO
- 4.12. ADDITIONAL ANALYSES

APPENDIX 5 (ACCOMPANYING CD OF COMPUTERISED TESTS)

- 5.1. EMOTIONAL COMPETENCE
- 5.2. EMOTION APPRAISAL
- 5.3. EMOTIONAL TRANSITION
- 5.4. ANXIETY
- 5.5. DEPRESSION

LIST OF TABLES

Table 1: Definitions of synonymous terms.....	8
Table 2: Individual differences thought to influence emotional expression	31
Table 3: Special Needs labels used during this research	55
Table 4: Revised EEQ items for children.....	69
Table 5: Items on the APT-C – reasons for revision.....	71
Table 6: Factor 1 - Interpersonal Perception	83
Table 7: Factor 2 – Intrapersonal Perception.....	83
Table 8: Final items for Intrapersonal Perception	84
Table 9: Factor One - Affective Empathy	85
Table 10: Factor Two - Cognitive Empathy	86
Table 11: Factor 1: Intimate Emotion	87
Table 12: Overt/Gregarious Emotion	88
Table 13: Factor 3: Covert/Hidden emotion	89
Table 14: Participants in the study by sex, ethnicity and behavioural status	90
Table 15: Class group statistics for both schools	91
Table 16: Correlations between questionnaires in Study 1.....	92
Table 17: Significant Correlations for TD sample	93
Table 18: Correlations for SEN sample	94
Table 19: Correlations for SEBD sample.....	94
Table 20: Items loading on EC scale showing factors and reliability statistics.	108
Table 21: Items from the three questionnaires not reliably linked to EC.	109
Table 22: Links between Key Competencies and Affective Skills and Differences	111
Table 23: Sample statistics for Study 2 – sex, status and ethnicity	119
Table 24: Sample sizes by sex, status and year at school.....	120
Table 25: Forced choice alternatives in emotion attribution task.....	128
Table 26: Category choices for emotion attribution.....	131
Table 27: Choices for emotion attribution: raw and ordinal categories and scores	133
Table 28: Descriptive statistics for each of the four postures	134
Table 29: Percentage of children choosing type of intentionality	139
Table 30: Number of times children chose levels of certainty across all presentations.....	140
Table 31: Scoring system for emotional faces.....	148
Table 32: Carroll and Steward's (1984) developmental stage coding scheme	149
Table 33: Response scoring for reasons for emotional change.....	151
Table 34: Emotional transitions used in MORPHO showing sex of model.....	169
Table 35: Ethnicity and sex of MORPHO sample	181
Table 36: Feedback from participants about the activity.....	181
Table 37: Considerations for exclusion of participants from normative sample.....	183
Table 38: Measures of central tendency in consistency	184
Table 39: Correlations between Questionnaire Scores and Age in the BC Sample	210
Table 40: Relationship between Affective skills and key competencies in BC children.....	213
Table 41: Descriptive statistics for each of the four postures – TD and BC samples.....	215
Table 42: Mean occurrences of choice: contrast of status groups.....	216
Table 43: Percentage of children choosing type of intentionality	216
Table 44: Descriptive statistics for sex and ethnicity of stimulus in BC sample	217
Table 45: Number of times children chose levels of certainty across all presentations.....	218
Table 46: Feedback from participants about the activity.....	220
Table 47: Correlations between anxiety scores and perceived emotional competence	230
Table 48: Correlations between depression and perceived emotional competence.....	232

LIST OF FIGURES

Figure 1: Theoretical model of influences on Emotional Competence	16
Figure 2: Correlation of Affective Perception showing Regression line	100
Figure 3: Correlation of Empathy showing Regression line	100
Figure 4: Correlation of Emotional Expressivity showing Regression line	101
Figure 5: 3D Scatter plot of all three Questionnaires	102
Figure 6: EC Items loading on Factor 1, showing standardised regression weights	103
Figure 7: Items loading on Factor 2, showing standardised regression weights	104
Figure 8: Items loading on Factor 3, showing standardised regression weights	105
Figure 9: Items loading on Factor 4, showing standardised regression weights	106
Figure 10: Items loading on Factor 5, showing standardised regression weights	106
Figure 11: Items loading on Factor 6, showing standardised regression weights	107
Figure 12: Items loading on Factor 7 showing standardised regression weights	107
Figure 13: Model of non-loading items	109
Figure 14: Non-loading APT items predicting unknown influence	110
Figure 15: IECA items predicting unknown influence	110
Figure 16: Mixed sex and ethnicity stimuli for 'Hands in Pockets'	125
Figure 17: Example page from Picture Pack	127
Figure 18: Mean values for the four ethnic and sex stimulus presentations	136
Figure 19: Mean values for each ethnic and sex stimulus group	137
Figure 20: Faces used and valence rated by adults during standardisation	147
Figure 21: Emotional choice for typical sample	153
Figure 22: 'Reason for Change' in typical sample	154
Figure 23: Quality of 'Reasons' showing developmental pattern	155
Figure 24: Hill figure Figure 25: Earliest known version	161
Figure 26: Attneave Illustration – man's face to seated woman (Stewart & Peregoy, 1983)	162
Figure 27: Sequence of interpolation of facial emotion: sad to happy and scared to happy	162
Figure 28: Comparative interpolation of sad to happy and happy to sad	163
Figure 29: Transition from happy (positive emotion) to passive (neutral emotion)	167
Figure 30: MORPHO practice screen (above) and test screen (below)	170
Figure 31: Administration of MORPHO within an IT suite	172
Figure 32: Feedback screens for MORPHO	173
Figure 33: Example scoring CHILD A and B	175
Figure 34: Means for the six Emotion to Neutral pairs	187
Figure 35: Means for the seven Emotion to Emotion pairs	187
Figure 36: Interaction Between Year at School and Status	211
Figure 37: Means for the seven Emotion to Emotion pairs in Study 4	221
Figure 38: Sample statistics for the six emotional to neutral pairs in Study 4	222
Figure 39: Children in depression categories of BC sample across both administrations	231
Figure 40: Theoretical Model showing Affective Skills and Differences as determined by this thesis	242

ABBREVIATIONS

TD.....	Typically Developing
BC.....	Behaviourally Challenged
SEN.....	Special Educational Needs
SEBD.....	Social, Emotional and Behavioural Difficulties
EBD.....	Emotional and Behavioural Difficulties
SpLD.....	Specific Learning Difficulties
FQP.....	Friendships Questionnaire Pack
PP.....	Picture Pack
EC.....	Emotional Competence (as a Score)
KC.....	Key Competencies
AP.....	Affective Perception
EM.....	Empathy
EE.....	Expressivity
PA.....	Monte Carlo Parallel Analysis
PCA.....	Principle Components Analysis
DV.....	Dependent Variable
IV.....	Independent Variable
ANOVA.....	Analysis of Variance
MANOVA.....	Multivariate Analysis of Variance
HMR.....	Hierarchical Multiple Regression
SEM.....	Structural Equation Modelling
RMSEA.....	Root Mean Square Error of Approximation
CFI.....	Comparative Fit Index
TLI.....	Tucker Lewis Index

A full explanation of these terms can be found in Chapter 1, Chapter 2, in Appendix 1.3 and in relevant Results sections of the thesis. Some abbreviations are only used within Results, for brevity, but are given in full in text sections of the thesis. Terms relating to actual test materials, where they are used, are fully explained.

PREFACE

This thesis is the culmination of my years within the educational system, working with and observing children. It examines assumptions made about emotion and behaviour observed during this time. Many children with purely educational needs (for instance dyslexia or dyspraxia) appear aware of their problems, respond equably when offered help, are liked by their peers and cause little problem within the classroom. With children who were exhibiting behavioural problems, there often appears to be little discernable difficulty in absorbing educational principles per se. However, a high level of distractibility and a resistance to being helped seems to render these children incapable of progressing educationally at the speed of their peers or adapting equably to the classroom environment. Emotional problems, whatever their origin, hamper the learning process and causing conflict within the learning environment. Given a one-to-one situation these children often present as needy and form an attachment to their tutor or helper; in the classroom they barely tolerate teaching staff and take every opportunity to disrupt the class either by inappropriate or aggressive behaviour.

Child and adult conceptions of most emotive situations observed by the author were inevitably disparate. Some students attributed aggressive motives and behaviours to their class teachers, who in turn (whilst not perceiving that they were treating the students in a confrontational manner) were aware the student was seeing attempts to placate or solve difficult situations as confrontational. This raised interesting questions: 1) are children with behavioural problems less competent in handling emotions than their peers; 2) do children with behavioural problems view others with a negative bias that comes from their own internal model of social relationships; and 3) do some children see emotive issues where other children do not and think differently in everyday situations than their peers?

During employment at the Anna Freud Centre as Assistant Psychologist I received training to administer measures of emotional and behavioural functioning to children aged six to twelve. This highlighted the lack of tests measuring specific areas of emotional understanding and organisation and the difficulties involved in administering standardised test measures (often paper) to children with behavioural difficulties. Upon these backgrounds this project, to examine children's emotional understanding and attributions of emotional state and intent to others, is based.

My thanks must be extended to my supervisors, Dr Mark Coulson and Dr Fabia Franco, who not only believed in the work I was doing but provided support and guidance in numerous ways.

Particular thanks must go to Dr Coulson as Director of Studies for reading through the masses of drafts liberally sprinkled with graphs and tables of every kind, for digging the wood out from the trees and for his expertise in developing the MORPHO software and adapting it to my specifications for this study. Thanks must go also to Dr Satwinder Purewal for her guidance over my copious attempts at Structure Equation Modelling. Thanks must also go to my institution, Middlesex University, for awarding a bursary in my second year of study, which enabled me to complete my thesis and teach during the following years.

Thanks must go to my husband Jon, who has not only tolerated a wife glued to the computer for years but the mountains of paperwork and books that have overrun our home. He has contributed not only tolerance and support but his own work developing the Access databases used for the fourth study, without which I would not have been able to administer tests in an interesting and involving way. Thanks too for his expertise and patience answering numerous Excel queries. I could not have done this without him. Finally, special thanks must go to the schools, staff and children who participated in this research; for their time and interest, for the enthusiasm and support of the staff and for the contribution of the families who allowed this research to take place. It would not be expedient to name them, but I thank them all.

CHAPTER 1: INTRODUCTION

This thesis primarily compares emotional competence and component scores in mainstream primary-aged schoolchildren with that of peers excluded because of severe behavioural difficulties. The introduction will explain the concept of emotional competence as it has emerged over the last twenty years, how it is measured, impacts on the child within the school environment (with reference to theory and current practice) and is conceptualised within this thesis. This will be followed by five studies. The first study will focus on the measurement of total emotional competence and key competencies in terms of perception, empathy and expressivity. The second and third studies will look at the appraisal of emotion in others using fixed choice and open response methodologies. The fourth study will examine how emotional competence and appraisal may differ in special needs children with emotional, social and behavioural problems. A supplement detailing the classification and categorisation of children with special needs in schools may be found in Appendix 1.3.

1.1. EMOTIONAL COMPETENCE

A proposed research connection in the 1990's between efficacy in handling emotions and academic and employment outcomes has led not only to academic interest in defining and measuring aspects of interpersonal and intrapersonal functioning related to the management of emotion but a lucrative financial industry within the business sector (Roberts, Zeidner & Matthews, 2001). The education system has mainly focussed on designing interventions around aspects of empathy and social skills training (Durlak & Wells, 1997), largely in an attempt to prevent ongoing behavioural problems. A longitudinal study of such interventions across 177 programmes concluded that most such measures are broadly successful (Durlak & Wells, 1997); teaching children to understand emotion in themselves and others and to handle emotions appropriately improved the quality of school experience. In the UK the influx of children with varied cultural backgrounds into schools (particularly in the south-east) now provides another challenge: that of reconciling emotional competence with cultural differences. Differing cultural backgrounds could well incorporate different attitudes towards emotional expression and peer relationships in childhood which would affect not only perceived accepted behaviour but how the behaviour of others is viewed. In adult studies it is clear that what is accepted as appropriate behaviour in one culture may be viewed differently in another (Lewis, 2005), affecting both business and cultural enterprise; for example accepted proximity in conversation in South and North America (Morrison, Conaway, Borden, & Koehler 2006) or acceptable topics and manner in conversation (Morrison et al., 2006). Competency in emotional aspects of life should be linked to cultural context (Fernández-Berrocal & Extremera 2006) but is nevertheless a key factor in successful social integration in any arena. Although most measurement of emotional competence to date fails to take culture into account, within western schools training in emotional skills and awareness is attracting growing interest as facilitator of both intervention and preventative schemes (Izard, 2001; Izard, 2002a) for children with special needs, social, emotional and behavioural problems, bullies and victims alike.

Diverse literature over the last decade has often failed to agree on how emotional abilities should be labelled, conceptualised or measured (Locke, 2005). The following sections will present briefly the rationale behind the notion of emotional competence, claims that it should be considered an 'intelligence', how it is conceptualised by the author (including the presentation of a theoretical model), has been previously assessed (and how it will be by this thesis) and the broad consequences of poor emotional competence for schooling.

1.1.1. Theoretical Roots

Interest in emotional competence unquestionably has roots in the concept of social intelligence. Traditionally, emotional response is seen as largely heritable and evolutionary, separate from cognitive processes (Darwin, 1989); intelligence, in contrast, largely cognitive and limited to spatial and verbal ability, with little room for emotionality (Sternberg, 2000). In an early attempt to integrate these concepts a new capacity of ‘social intelligence’ was proposed as *“the ability to understand and manage men and women, boys and girls - to act wisely in human relations.”* (Thorndike, 1920 p228; cited by Sternberg, 2000). Thorndike divided intelligence into three facets: the ability to understand and manage ideas (abstract), the ability to understand and handle concrete objects (mechanical) and the ability to understand and manage people (social). From Thorndike’s work the psychometric view of social intelligence developed, although he personally maintained such abilities would be hard to measure and suggested it ‘unwise’ to try to separate emotional aspects from traditional intelligence (Thorndike, 1921). Wechsler, developer of the extensively used WISC intelligence quotient (IQ) test, conceded there were undoubtedly ‘non-intellective’ factors which could be considered ‘intelligences’ and these might include affective, personal and social factors (Wechsler, 1950). He conceptualised these as facets of personality, however. By 1970 intelligence and the emotions were still seen as narrow, separate fields (Cianciolo & Sternberg, 2004). McClelland argued that intelligence quotient, despite claiming to be a good predictor of academic success, was not a good overall performance-related measure (McClelland, 1973). Traditional academic aptitude and school grades did not reliably predict employment or life success; McClelland proposed personality variables and other competencies such as communicative skills, self-discipline and initiative, may be better predictors (McClelland, 1973).

Social intelligence was redefined in the 1980’s to refer to an individual’s fund of knowledge about the social world and at the heart of cognitive aspects of personality (Hedlund & Sternberg, 2000). During the 1990’s the concept was broadened, largely through the publications of Mayer and Salovey, to include aspects concerning internal emotion and cognitive interactions; a set of skills or competencies that included the accurate appraisal and expression of emotion (in oneself and others) and the regulating of the same through the management of emotions (Salovey & Mayer, 1990). The Mayer-Salovey model introduced these core competencies with a relatively new label of ‘emotional intelligence’ with four components: 1) perceiving emotions accurately (in self and others), 2) understanding emotions, emotional language and signals, 3) managing emotions (to attain goals) and 4) using emotions to facilitate thinking. These four areas had been variously explored for some years previously as individual ‘competencies’ in emotional matters: emotional (or affective) perception, empathy, and the ability to appropriately moderate

emotional expression (including the concept of emotion regulation). Mayer and colleagues, however, maintained that together these competencies measured something comprehensive and cohesive which was more akin to intelligence than simply a conglomeration of ‘eclectic traits’ (Mayer, Salovey & Caruso, 2008).

Parallel research by Goleman (1995) an academic best known for his journalistic literature, drew on the research of LeDoux concerning the amygdala and emotion circuits in the brain (LeDoux, 1994), to bring emotional competence firmly into the public frame with commercial literature on ‘Emotional Intelligence’. LeDoux’s proposal that emotional memories and responses were primary drivers of social/emotional response and personal effectiveness gave a neurobiological angle to the perception of emotion as having an ‘intelligent’ function. With a series of books targeted towards public and business arenas, Goleman (1995, 1998) broadly claimed that emotion-related competencies of self-awareness, self-discipline, persistence and empathy were actually of greater consequence than IQ in life outcomes. This proposition has since been echoed by research both in primary schooling (Elias & Weissberg, 2000) and the adult environment (Fisher & Ashkanasy, 2000; Fox & Spector, 2000); although others have claimed that any proficiency in this area can be accounted for by personality variables (Mehrabian, 2000). Goleman proposed a wide range of qualities (with core competencies of self-awareness, empathy and impulse control) that enable people to excel interpersonally. The emphasis on intelligent emotional behaviour and response plus the use of the term ‘qualities’ rather than ‘skills’ suggests that for Goleman emotional competence was primarily a learned ability. A revised definition by Salovey and Mayer also saw ‘skills’ redefined more generally as ‘abilities’ which enabled an individual to access and generate emotion so as to promote emotional growth (Mayer & Salovey, 1997).

The concept of any emotionally-based ability or competency being important in daily life is undisputed: emotions are regarded widely as basic, instinctive, present in basic expression from birth and underlying many thought processes (Ekman, 2003). They have been viewed as distracters of cognitive states; ‘perturbances’ (such as irrepressible excitement or overwhelming grief) which disrupt or disturb higher mental activities (Sloman, 1991), making it difficult for an ‘organism’ to function. However, emotion has been recognised as a facilitator of prosocial behaviour and problem solving (Isen, Johnson, Mertz & Robinson, 1985; Isen, Daubman & Nowicki, 1987). The functionalist theory of emotion sees emotions as instrumental in maintaining, disrupting or establishing interaction with the environment (Barrett & Campos, 1987). Oatley and Johnson-Laird argue that emotion, as a response to environmental stimulus, is crucial in the self-management of behaviour (Oatley & Johnson-Laird, 1987). The rationale of Mayer, Salovey and Caruso (1998) and Goleman (1995, 1998) goes further in proposing 1) that social success is *determined* by how emotions are handled: both one’s own and those of others

and 2) that this ability to handle emotion efficaciously could be measured in the individual, and 3) that these competencies together should be considered a form of ‘intelligence’.

1.1.2. A Competence or an ‘Intelligence’

Emotional competence has been proposed as a product of the interaction between an underlying intelligence (similar to the ‘g’ of Spearman’s IQ theory (Williams, Zimmerman, Zumbo & Ross, 2003)) in handling emotions and the process of experience and adaptation (Cianciolo & Sternberg, 2004). The justification for such a claim of underlying emotional ‘intelligence’ relies on three assumptions: 1) that any such competency contributes to thought processes, sound judgement and mental performance (Mayer & Salovey, 1997), 2) that it can be differentiated conceptually from traits and talents (Bar-On & Parker, 2000) and 3) that it relates to mental performance skills which can be measured rather than simply reflected in preferred behaviour (Mayer, Caruso & Salovey, 2000). Mayer et al (2000) claim these criteria have been met. Firstly, the capacity has succeeded in effectively measuring mental performance: various models claim to do this, for example the Multifactor Emotional Intelligence Scale (MEIS), developed to serve as a comprehensive measure (Mayer et al., 2000). Secondly, the capacity correlates, but not too strongly, with other closely related abilities (i.e. mental abilities currently measured by IQ testing), for example the MEIS and verbal intelligence (Mayer et al., 2000). Thirdly, the capacity develops with age and experience, with adults outperforming adolescents in measures on the MEIS (Mayer et al., 2000). The revised, broader Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) claims to test adult abilities to perceive and identify, generate, understand and manage emotions using a variety of procedures and over 100 items, including visual responses to facial expressions (Mayer, Salovey & Caruso, 2000).

Argument for emotional competence to be conferred with the status of ‘intelligence’ was supported with Gardner’s extensive research in the 1980’s on the brain and the nature of human intelligence. Gardner saw traditional measures (visual/spatial and verbal skills) as too limited a summary of human capacities, proposing instead seven core intelligences, including two emotional and affective areas: interpersonal and intrapersonal intelligence (Gardner, 1999). Gardner argued the ability to discern and handle emotion both in the self and others were as much intrinsic aspects of innate personal skills as were traditional areas of intelligence. Some neurobiological support has been proffered for this: specific areas of the brain are indeed dedicated to the recognition of faces and, it is claimed, the appraisal of facial expression (Pierce, Muller, Ambrose, Allen & Courchesne, 2001). However, emotion recognition and appraisal have been demonstrated to develop with age, experience and practice, as can be seen in studies

with autistic individuals (Golan & Baron-Cohen, 2006) and other pervasive developmental disorders (Solomon, Goodlin-Jones & Anders, 2004). It is debatable therefore whether such skills can be labelled as an intelligence in terms of a fixed quotient determined from birth. The development of cognitive capacities and the interaction of environment and emotional experience of the child should lead to the development of emotional aptitudes; learned skills rather than an inflexible disposition. Emotional competence therefore reflects the individual's personal history and as such can be facilitated or compromised by influence of peers, family, culture or sub-cultures such as the school environment. (Bullock & Russell, 1986; Denham, 1998; Saarni, 1999; Saarni, 2000).

Mayer et al still maintain an integrated, multi-component model labelled 'emotional intelligence' (Mayer, Salovey & Caruso, 2008) although Goleman now proposes an emphasis on a combination of emotional competencies (as being intrapersonal abilities) and social intelligence (Goleman, 2006), seeing emotional competence in terms of behavioural outcomes. It has been variously proposed that emotional competence can be altered or changed by different states; influenced by personal history and schemas; tutored or learned (i.e. empathy skills, emotion regulation). If emotional competence is a form of 'intelligence' it is not considered even by Mayer et al., (2000) or Bar-On (2000) to be one that relies upon an inflexible capacity. Healthy emotional functioning may represent a 'native' capacity which, in conjunction experience and adaptation, presents as a competence, but there is no conclusive evidence as to whether such tests (such as the MSCEIT) are measuring a native capacity or a resulting competency. Emotional competence would therefore based on an underlying sensitivity and perception but must be practiced or enhanced in order to relate efficaciously to others in emotional matters. The use of the term 'intelligence' in the context of emotional efficacy is still controversial and according to some, unwarranted (Roberts, et al, 2001). There is doubt as to whether there is any reliable measure of performance-related emotional skill when results are controlled for personality and traditional intelligence (Roberts, Zeidner & Matthews, 2001). Some accept discrete measurement of emotional competence is possible, but question the legitimacy of conferring the status of 'intelligence' to such properties (Izard, 2001), preferring a concept of adaptive emotions. Whether truly an 'intelligence' or not, emotional competence is undoubtedly a concept of interest to academics, educators and employers alike. The alternative is an '*integrative concept for affect-related skills*', which may be termed 'emotional competence' (Giardini & Frese, 2006, p64) and which is based on a growing field of sound empirical research (Zeidner, Matthews & Roberts, 2004).

1.1.3. Clarifying the Concept for this Thesis

Over the last 20 years four major terms for referring to the broad construct of emotional abilities have been variously used in literature. As a measure of how widely these terms are used, a PsycINFO keyword search of peer-reviewed journals revealed for the period 2000 to April 2009 a total of 2366 references to ‘emotional intelligence’ (405 from 2008 onwards), 921 to ‘emotional competence/competency’ (137 from 2008 onwards), 157 to ‘emotional knowledge’ (36 from 2008 onwards) and 101 to ‘emotional literacy’ (12 from 2008 onwards). The terms ‘emotional intelligence’ and ‘emotional competence’ are by far the most popular. The same pattern of predominance in literature was identified in a previous survey (Stone, 2005) examining the period 1990 to 2005. Terms ‘intelligence’, ‘competency’ and ‘literacy’ appear to an extent synonymous, as is clear from the definitions identified in Table 1 below.

The term ‘Emotional Literacy’ appears primarily in educational and healthcare journals as a popular label for school-based learning programmes (Sharp, 2000) and has been used by educational institutions exploring emotional and social issues over the last 20 years (Goleman, 1997). For the benefit of cooperating schools (and after consultation with head teachers) the term “Emotional Literacy Project” was used within the schools involved in this research. In conjunction with a logo of the author’s design posters were produced and disseminated in order to make the project understandable and compatible with school aims. In contrast ‘emotional knowledge’ appears primarily in literature prior to the advent of ‘emotional intelligence’ and generally now refers to acquired skills in some specific aspect of emotional understanding or function (Zeider et al, 2006). As such it should be considered in terms of the ability to generate a ‘*successful resolution of emotional challenges*’ (Matthews & Zeidner, 2000, p459); a capacity to handle emotive situations efficaciously. A further term ‘emotional organisation’ appears only in psychoanalytic literature and is linked to cognitive states (such as depression), experience and personal history; for example in abuse and neglect (Pollak, Cicchetti, Hornung & Reed, 2000). These three terms will not be considered further in this thesis.

TERM	ACADEMIC DEFINITIONS
Emotional Intelligence	<p><i>“Emotional and social intelligence is a multifactorial array of interrelated emotional, personal and social abilities that influence our overall ability to actively and effectively cope with daily demands and pressures.”</i> (Bar-On 2000, p385)</p> <p><i>“The capacity for recognizing our own feelings, and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships.”</i> (Goleman, 1998, p317)</p> <p><i>“...the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge, and the ability to regulate emotions to promote emotional and intellectual growth.”</i> (Mayer & Salovey, 1997, p10)</p>
Emotional Knowledge	<p><i>“Acquired, contextualised skills for handling specific encounters”</i> (Zeidner, Matthews & Roberts, 2006, p115)</p> <p><i>“A child’s find of information about emotion and emotional experience in the self and others that is used to understand and interpret events in the environment.”</i> (Brenner & Salovey, 2000, p183)</p>
Emotional Literacy	<p><i>“To be emotionally literate is to be able to handle emotions in a way that improves your personal power and improves the quality of life for you... and the people around you”</i> (Steiner, 2003, p1)</p> <p><i>“The ability to understand, manage and express emotions in a resourceful way”</i> (Bocchino, 1999).</p> <p><i>“Emotional Literacy is made up of three abilities: the ability to understand your emotions, the ability to listen to others and empathize with their emotions, and the ability to express emotions productively.”</i> (Steiner, 1997, p11)</p> <p><i>“The ability to experience a variety of emotions at a variety of intensities, with knowledge of the causes for these feelings.”</i> (Steiner, 1984, p162)</p>
Emotional Competence	<p><i>“Emotional competence is the integrative term for skills that concern the accurate or effective perception, comprehension, regulation, and utilization of affect and affective information.”</i> (Giardini & Frese, 2006, p64)</p> <p><i>“Emotional competence (is) a broad construct encompassing the understanding and regulation of emotions, the capacity for empathy, and the ability to adaptively cope with distressing emotions.”</i> (Trentacosta, Izard, Mostow & Fine, 2006, p149)</p> <p><i>“Emotional competence (is) an “umbrella” construct that assumes the significant contribution of an individual’s developmental relationship history (e.g., quality of attachment), the individual’s cognitive developmental complexity, the system of beliefs and values in which the individual lives, and the immediate dynamic context in which emotions are evoked.”</i> (Buckley, Storino & Saarni, 2003, p181).</p> <p><i>“The demonstration of self-efficacy in emotion-eliciting social transactions”.</i> (Saarni, 1997, p38; Saarni, 2000, p68)</p> <p><i>“A learned capability based on emotional intelligence that results in outstanding performance at work.”</i> (Goleman, 1998)</p>

Table 1: Definitions of synonymous terms

From the definitions presented in Table 1 emotional competence emerges as a meta-concept that incorporates interrelating abilities and aptitudes that have been described as ‘intelligence’ in parallel research. Indeed a criticism of the concept of ‘emotional intelligence’ as measured by Mayer et al (2000) is that it excludes from consideration aspects of culture, context and self-representation which are all integral parts of emotional functioning (Saarni, 2000). ‘Emotional competence’ is the term favoured by developmentalists and reflects the need to examine components of emotional functioning separately. It is necessarily rooted in the social and

EMOTIONAL INTELLIGENCE

cultural context of the individual (Saarni, 2000) and reflects the belief of the individual that they have the internal resources to effectively handle emotional issues in such a way as to achieve a desired outcome. The desirable outcome for an emotionally competent individual will be linked to their personal value system and moral character; thus variation in emotional competence is to some extent a reflection of a person's developmental history (Saarni 2000). 'Emotional competence' may be a better description of what is frequently being measured by most tests (Matthews, Zeidner & Roberts, 2004) and is the term preferred for the aspects of emotional functioning that will be explored in this thesis.

This thesis will be examining emotional competence, defined by the author as a two-fold concept: an individual's perception of how they relate to emotional stimuli (both internal and external) combined with the individual's ability to appraise emotion in the self and others (socially) to facilitate a positive outcome. Emotional competence, therefore, should ideally be measured using two methods: self report (the individual's perception) and some form of performance measure (to examine the individual's ability to handle emotional situations). The author's theoretical model of emotional competence, its link to key competencies and core aspects of functioning, will be presented in Chapter 1.1.6.

1.1.4. Measuring Competencies

Previous studies have addressed single areas of emotional competence in primary-aged children, but little attempt has been made to measure emotional competence as a cohesive set of skills linked to self-appraisal and the appraisal of others. This thesis aims to put together a series of measures, based on a theoretical model, which will address emotional competence in terms of the author's definition and include self-appraisal of key competencies: perception, empathy and expressivity. In addition measures will be designed and implemented to investigate a child's ability to appraise emotion both facially and in a whole body presentation, to reason about emotional change, and to be sensitive to the transition between emotions in others. These core competencies have not been investigated as a 'group' before and will both represent an important contribution to knowledge and form the basis for further research. Whether these competencies can be seen to relate to a core competency or simply be considered an eclectic collection of capacities is of crucial importance for determining the direction of future investigation, therefore an attempt will be made to establish an overall emotional competence 'score' (EC) based on the three self-report measures.

The measurement of emotional competence in adult studies is determined by how it is conceptualised in terms of the relationship between traits and performance. Several major research-based models (which claim an overall ‘score’) may be useful for comparison. The Mayer-Salovey-Caruso model, the MSCEIT, augments self-report with a range of performance-based assessments (Mayer et al, 2000) whereas the Bar-On Emotional Quotient Inventory (EQ-i) relies solely on self-report to ascertain the emotional competence of an individual (Bar-On, 2000). Other measures focus on areas of emotional competence: the Schutte Self-Report Inventory, based on the work of Mayer and Salovey, concentrates on areas of alexithymia, attention to feelings, clarity of feelings, mood repair, optimism and impulse control and had good predictive value for college grades (Schutte et al., 1998). The earlier Trait Meta-Mood Scale used a process of self-report to examine emotional attention, emotional clarity, and emotional repair (Salovey, Mayer, Goldman, Turvey & Palfai, 1995). A common criticism of tests for emotional competence is that they rely heavily on self-report, rather than ability, as a measure of assessment (Roberts et al., 2006), although the MSCEIT claims to combine the two (Mayer et al., 2000). Self report measures of emotional competence in adults have been found to correlate poorly with ability tests, a pattern observed in IQ measures (Brackett & Mayer, 2003). The Goleman Emotional Competence Inventory (ECI-360) is largely a self-report test but also asks others for their opinion of the client’s abilities, a methodology which has also been widely criticised as questionable at best (Roberts et al., 2006).

Mayer and Salovey are by no means the only writers on the subject or formulate test measures for emotional competence. So many (and varied) models claiming to measure emotional competence and incorporating traits arguably associated primarily with personality have been proposed that justifiably criticism has been levelled that the concept has become “preposterously all-encompassing” (Locke, 2005, p428). Adult measures, many crudely formed, are now widely available on the internet as well as in popular books. Mayer and colleagues are the first to acknowledge that these ‘*journalistic popularizations*’ (Mayer et al, 2008, p513) of the concept are often inadequate, overly broad and make implausible claims.

However, there are similarities between many of the major tests in the areas of competency identified: The MSCEIT (Mayer et al, 2000), EQ-i (Bar-On, 2000) and ECI (Goleman, 1998) all include as core competencies the perception of affect, empathy and the management of emotion. This current study aims to incorporate these three core competencies, along with performance related measures of appraisal, in an attempt to establish norms for emotional competence in typically developing children in middle childhood. These measures will together be administered to a sample of children excluded from mainstream schooling for severe behavioural problems in order to identify how emotional competence in these children may differ from their peers.

1.1.5. Emotional Competence and Educational Consequences

If emotional competence is flexible, emotional skills can be improved with tutoring and an increased awareness of the emotional consequences of actions engendered. A decline in emotional management abilities could also occur under conditions of stress or following emotional trauma. Poor emotional role models during childhood or adolescence may lead to maladaptive patterns of emotional coping. Many schools now incorporate discussion of handling one's own emotions (with the precept that this can be improved by training and intervention) into classroom activities.

If emotional competence is the ability to understand, manage and express emotions in a resourceful way (Bocchino, 1999) then the emotionally competent individual will react to emotional prompts or provocation in an acceptable and appropriate way with an integration of reason and affect. The opposite of this would be atypical emotional responses to emotional provocation or the need for instant emotional gratification, regardless of the cost to oneself or others. Emotional competence is therefore a combination of knowledge and practice. Teaching children to be emotionally competent is thought to give them the ability to handle the complexities of emotional life, as important to their overall wellbeing and their long-term outcome as the capacity to read, write and employ mathematics (Sharp, 2001). Such children should be better able to understand themselves and others, to modify their wants and desires, be better adapted within the classroom, will find it easier to cope under pressure, can forestall play in order to work when needed (delay gratification) and will work better in groups (because they communicate better with others non-verbally). Emotionally competent children have better coping styles and are both rated more highly by their peers for leadership qualities and cooperation with others (Mavroveli, Petrides, Rieffe & Bakker, 2007) and considered better academic achievers (Izard, 2002a; Izard, 2002b). The Special Needs category 'Social, Emotional and Behavioural Disorder' (SEBD) itself acknowledges emotional and behavioural disorders are linked. The studies presented below have looked at aspects of emotional functioning and behavioural disorder and the implications for the child in schooling.

1.1.5.1. Poor Integration and Performance in the Academic Environment

Emotional development and self-regulation are as important for the child's schooling as is their academic ability. A lack of emotional competence has been implicated in poor academic success through a failure to thrive in the learning environment and in the incidence of bullying in

schools due to a lack of social skills and atypical peer relationships. Categorisation as having an emotional/behavioural problem has been found to be a predictor of poor academic outcome (Frick et al., 1991). Poor emotional competence has been linked with behavioural problems in schools (Cook, Greenberg & Kusche, 1994; Izard & Read, 1986; Vinden, 1999), and proposed as a predictor of continuing behavioural problems and social difficulties (Cook et al., 1994). Children with a deficiency in emotional understanding in preschool years (for example poor understanding of mixed emotions and emotional display rules) are more likely to show more aggression towards peers in later years and display more anger in the classroom (Denham et al., 2002). Improving emotional fluency (in this case, the appreciation of complex emotions based on teacher report) can improve behaviour (Greenberg, Kusche, Cook & Quamma, 1995) but no other specific aspects of emotional competence were investigated. More recently a lack of emotional understanding was negatively correlated with aggressive behaviour within a school setting and linked by the authors to differences in social-cognitive patterns (Dodge, Laird, Lochman & Zelli, 2002). Socially, too, poor emotional understanding puts children at a disadvantage when dealing with their peers. Children who are well-adjusted emotionally have a better chance of integration and success in early years than those showing early behavioural problems, which are predictive of later problems (Raver, 2002). Children who display disruptive behaviour in school are likely to be less well liked by peers and teachers, dislike school and have lower rates of attendance than prosocial peers (Raver, 2002). The child who from early years exhibits antisocial behaviour is less likely to achieve academically (Raver, 2002). Emotional perception and emotion regulation appear to correlate with academic performance from early years regardless of verbal ability; emotional competence in pre-school (kindergarten) appears to predict academic competence in first grade schooling, independent of peer and teacher relationships (Izard et al., 2001; Izard, 2002a).

Personality characteristics have also been found to affect academic outcomes, with traits of conscientiousness and openness to experience correlating with performance in SAT¹ scores (Noftle & Robins, 2007), irrespective of gender. However, poor emotional functioning and a personality characteristic of 'tough-mindedness' has been linked to sex differences in academic performance (with girls more likely to achieve higher academic outcomes than boys) in a study of 12 year old Australian school children (Vialle, Heaven, & Ciarrochi, 2004). Significant sex differences were also found in depression and anxiety, attitudes towards education and conscientiousness, with boys showing a greater tendency towards negative affect and girls towards optimism and diligence.

¹ School Statutory Assessment Tests

Of course academic success is not the only area of concern connected to a child's emotional development. Socially, emotional competence gives a child an advantage in interaction both with peers and educators; the child benefits from increased self-understanding in adaptation to the environment and mental and emotional growth. Emotional competence leads to a subjective sense of well-being as well as the resilience to cope with stressful and emotive situations (Bar-On & Parker, 2000). As typical children develop, so they not only learn to manage their own emotions within stressful situations but understand that their responses can and should be regulated rather than spontaneous outbursts (Saarni, 1999; Saarni, 2000).

1.1.5.2. Poor Empathy Skills and Performance in the Academic Environment

There has been some evidence of a specific connection between empathy skills and academic performance. In a study of 201 secondary school students, grades were positively related to an ability to decide on and formulate/deliver an empathic response in response to story-based scenarios. However, there were no relationship between academic performance and the ability to select an appropriate previously prepared empathic response (Darlene & Aspy, 1984). It must be cautioned here that the ability to formulate a written response would require literacy skills to a higher extent than the ability to choose an appropriate scenario from a proffered choice, which may suggest that grade averages were actually related to verbal ability, a feature commonly seen in childhood and adolescence (Cianciolo & Sternberg, 2004).

Empathy has traditionally been envisaged as an important key to prosocial behaviour (Feshbach & Feshbach, 1969) and many primary schools in the UK utilise Personal, Social and Health Education (PSHE) sessions to develop or enhance empathy as a route to improving social collaboration and behaviour of children. The rationale is that if a child can consider the needs and feelings of others this will help to moderate their behaviour, particularly in an emotive situation. Developing empathy is seen as a process whereby the child becomes aware of the needs, beliefs and desires of others as well as themselves and learns to take these into consideration. The development of empathy as a facet of emotional competence and a discussion of differences between typical and atypical populations may be found in Chapter 1.2.4.

A focus upon the impact of bullying, for example, in a primary school can raise awareness generally to antisocial behaviours and to bullying as a cause of emotional distress² and thereby, it is hoped, reduce the incidence of such behaviour. However, anti-bullying programmes

² In the second pilot study, the picture pack activity, children from a school with a recent anti-bullying programme showed a high rate of reference to bullying in their 'reasons for emotional change.'

utilising empathy training are not always successful in reducing the incidence of bullying, although they have been found to raise awareness and improve social skills (Kaiser-Ulrey & Lynn, 2004). On the contrary, although the school bully is stereotypically lacking in social skills and understanding (including empathy) he or she may in fact be more an expert in manipulation of social situations and the affect of others than previously considered. Bullies are adept not only in offering physical threat (either directly or in organising gangs of others) but also in intimidation and emotional cruelty (Sutton, Smith & Swettenham, 1999). Their methods may be direct or subtle and indirect. In a study of seven to 10-year olds, ringleader bullies scored highly for empathy skills (Sutton et al., 1999) than their victims or observers. High cognitive empathy and low affective empathy may be something of a signature of those who can wound by emotional manipulation. This has important implications for intervention strategies. High affective empathy (and corresponding helping behaviour) has been linked to positive mood states (Terwogt, 2002) but helping behaviour is based on understanding of display rules, which by the age of 10 should be well internalised (Saarni, 1999). It may be that a lack of cognitive empathy is not a signature of children with behavioural problems either. Peer mediation has been more recently proposed as a better moderator of bullying in the school situation (Frey et al., 2005). Training in emotion regulation and assertiveness for those who are vulnerable to bullying has also found to be successful (Salmivalli, 1999), suggesting a largely cognitive component in bullying.

1.1.6. Emotional Competence and Behavioural Problems

Not all emotional disturbance manifests in problems that can be easily identified or are overtly disruptive in a school setting. Emotionally disturbed behaviours can be grouped into two main categories: firstly those that are antisocial, outward and generally directed towards others; noisy, aggressive and confrontational. These are described as ‘externalising problems’. For the purposes of this study ‘externalising behaviour’ will refer to overt and disruptive behaviour. Other behavioural consequences of emotional disturbance may be internalised and self-directed: for example moodiness, depression and withdrawal. These are commonly referred to as ‘internalising behaviour’ and inwardly directed behaviours will be referred to in this way during this study. Linking emotional problems with externalising behaviours is not a difficult step (see previous section) but suggesting that externalising behaviours are in part due to a lack of emotional competence is quite another. Any emotional disturbance is likely to lead to a change in behaviour, even long term changes. Whilst externalising behaviours indicate a degree of emotional volatility, there is little case for assuming that poor emotional competence, rather than environmental causes, is to blame. Environmental factors may precipitate undesirable emotional outcomes even in those with a previously good understanding of emotional issues.

Externalising behaviour is traditionally associated more with males than females. Parental report of over 2000 children between the ages of four and 18 years with problem behaviours using the Child Behaviour Checklist (CBCL; Achenbach, 1992) significantly more boys exhibited externalising behaviours than girls (Bongers, Koot, van-der-Ende & Verhulst, 2003). In a subsequent study both sexes exhibited a similar trajectory of behaviours that peaked around 11 years of age (Bongers, Koot, van-der-Ende & Verhulst, 2004). That externalising behaviours are generally seen in males may be seen as support for sex differences in emotional expression (see Chapter 1.2.5.2). In addition both samples (above) were mainly Caucasian children and culturally accepted sex differences in norms of behaviours may have been a factor. However, repeated studies with diverse cultural populations have confirmed that boys are more likely to exhibit more externalising problem behaviours than girls (Crijnen, Achenbach & Verhulst, 1997; Verhulst et al., 2003). These studies used the same method of measurement, parental report using the CBCL. Whilst this has the advantage of consistency it does mean that reports were restricted to the parameters of the test itself. Bongers (2004) points out that there is no consideration of relational aggression (emotional violence or a bullying relationship where harm is perpetrated upon others by, for example, the spreading of rumours or exclusion from a group or activity) in the CBCL and this may be more a presenting feature in girls than in boys. It is nevertheless a form of aggressive behaviour and other-directed.

In addition to a clear link between domestic violence and the development of behavioural problems in childhood (Lieberman, van Horn & Ozer, 2005), the degree of worrying in a child exposed to domestic violence has also been associated with externalising behaviour (Graham-Bermann, 1997) in children aged six to twelve years. This suggests anxiety can also be the precipitator of behavioural problems, a challenge to the idea that being emotionally competent would guard against antisocial behaviour; of course it could be argued that the handling of anxiety is in itself a component of emotional competence. This research also raises issues of the links between parental behaviour and exhibited behaviour in children. If a child is exposed to domestic violence (primary role models exhibit aggressive behaviour) they are more likely to express themselves in an aggressive and antisocial manner. This pattern has been confirmed in longitudinal studies with over 40,000 families in the United States (Lundy & Grossman, 2005). The degree of externalising problems could be linked directly to two factors: parental behavioural and personality features of the child (Van-Leeuwen, Mervielde, Braet & Bosmans, 2004). In this instance the child's resilience and capacity for self-control was found to be a crucial feature. Where parents were benevolent and children conscientious reports of child behaviour were positive. Negative parental control was correlated with externalising behaviours in children who lacked strong self-control, but not in children who were resilient, suggesting an

interaction between personality and parenting in the manifestation of behavioural problems in childhood.

1.1.7. Theoretical Model of Emotional Competence

So far this thesis has discussed the nature of emotional competence, how it manifests in childhood, is described in literature, impacts on schooling and peer relationships and is associated with behavioural disorders. Three key areas have been identified for self-report examination: Affective Perception, Empathy and Emotional Expressivity. These are conceptualised in this thesis as ‘key competencies’, influenced by affective skills and attitudes, the development of which is linked to core aspects of the child’s psyche and environment; in turn affected by primary factors. As part of the consideration in this thesis of the nature of emotional competence, the author proposes the following simple diagrammatic representation of the influences on the development of emotional competence (Figure 1 below).

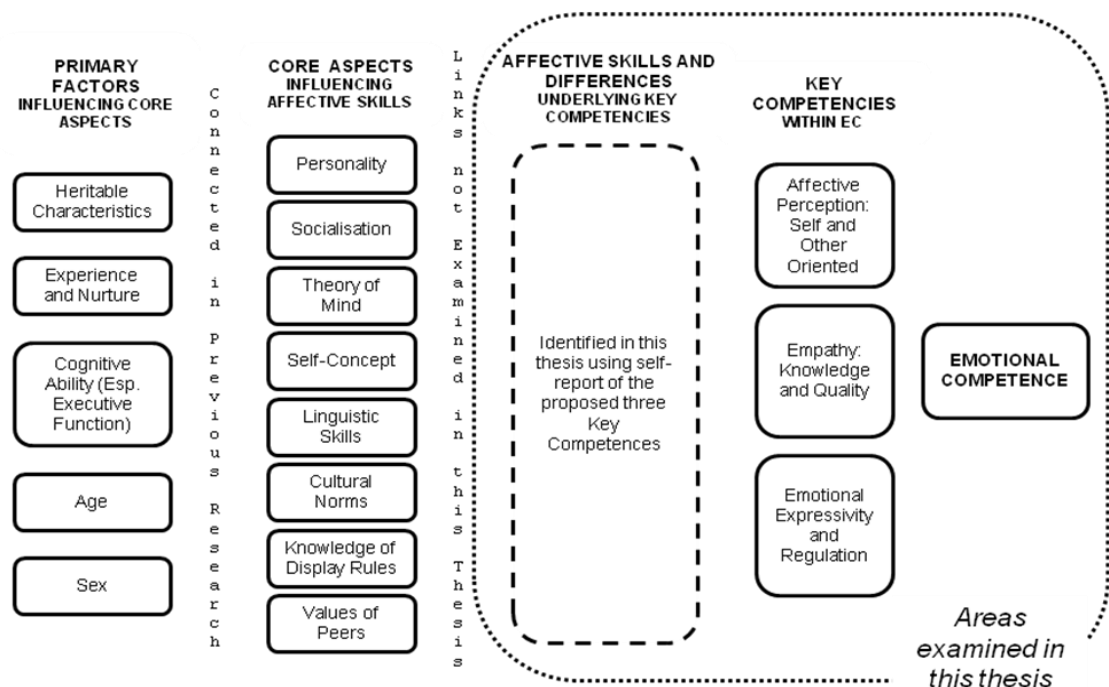


Figure 1: Theoretical model of influences on Emotional Competence, showing areas examined in this thesis

Links between primary factors and core aspects in the model above have been supported. Heritable characteristics continue to be considered a major contribution to personality differences. Identical twins exhibit around 40 to 50% similarity in scores using the most prevalent modern model of personality, the Five Factor Model, as compared to 20% or less in fraternal twins (Loehlin, 1992; Beer, Arnold & Loehlin, 1998). These factors comprise surgency

(the continuum of extraversion, including aspects of dominance, cheerfulness, self-confidence, competitiveness, sociability and energy levels), agreeableness, conscientiousness, neuroticism and openness. Heritability may contribute as much as 54-80% in males and 56-70% in females towards extraversion scores (Loehlin, 1992) and in five cross-cultural studies involving 24,000 twin cohorts, average correlations for identical and non-identical twins were .51 and .18 respectively for extraversion and .46 and .20 for neuroticism. Cognitive ability (assessed by Bayley and Stanford-Binet scales) has been seen to facilitate the development of self-concept in the early years, rather than chronological age, even in Down's syndrome children (Mans, Cicchetti & Sroufe, 1978). Performance in Theory of Mind (ToM) tasks in preschool children has supported the premise that ToM is facilitated by cognitive development, specifically in executive function (Hughes & Ensor, 2007). The sex of a child will have consequences for the manifestation of cultural norms and adoption of display rules (Saarni, 1999; Banerjee 2000) and the development of linguistic skills, particularly in pre-adolescents (Flynn & Rahbar, 1994).

The quality of a child's early nurture and attachment has been firmly associated to the quality of relationships (through the construction of internal working models) across the lifespan (Ainsworth & Bowlby, 1991). This includes the quality of peer relationships and successful socialisation in early and middle childhood (Saarni, 1999). Secure attachment has even been linked with the quality of socialisation in religion and the ability to conceive a nurturing, effectual God (Reinert & Edwards, 2009). Attachment style can have consequences for peer relationships in early childhood. Secure attachment has been negatively related to peer-victimisation (Card & Hodges, 2008) and negative parenting styles positively related to peer-victimisation, even in pre-school years (Ladd & Ladd, 1998). Poor (particularly hostile) parenting acts as an inhibitor in the development of peer competencies in preadolescents of both sexes (Finnegan, Hodges & Perry, 1998) albeit with different mechanisms. Emotion regulation and socialisation is adversely affected by maltreatment or even exposure to domestic violence (Maughan & Cicchetti, 2002). Maladaptive patterns of empathic response have been found in children with atypical backgrounds, for example abused toddlers (George & Main, 1979; Howes & Eldredge, 1985; Denham, 1986; Strayer, 1980).

Links between core aspects (as shown in Figure 1) and both key competencies and emotional competence have been explored in previous studies (please see Chapter 1.2) but there has been little exploration into what specific affective skills and differences are required to develop key competencies. This study will identify the affective skills and differences required for the development of key competencies by examination of the factor structure of emotional competence, using three questionnaires targeting affective perception, empathy and emotional expressivity (the areas within the dotted line). In addition effects of sex and age at time of

testing will be explored. Further research should explore links between core aspects and the affective skills and differences identified in this study.

1.2. EXPLORING EMOTIONAL COMPETENCE IN CHILDREN

In order to investigate the link between emotional competence and aggressive and obstructive behaviours in school-aged children it is important to establish whether such behaviours vary mainly with situational circumstances or reflect a measurable difference or deficit. In the first stage of investigation, this thesis will examine the perceived emotional competence of typically developing children presenting with no behavioural problems. This will be done using three main competency areas identified as having an effect on academic and social functioning (Gilbert, 2001; Saarni, 2000) and behaviour (Lengua, 2002; Cook et al., 1994; Eisenberg & Miller, 1987): perception, empathy and expressivity. The following section documents the normal developmental pattern and behaviour indicators of each of these competencies.

1.2.2. Emotional Competence and Emotional Development

Malatesta and colleagues (Malatesta & Haviland, 1982; Malatesta, Culver, Tesman & Shepard, 1989a) were possibly the first to document evidence that emotional development is part of a life process which begins with the imitation of recognisable emotional displays in early infancy (morphological maturity) from as early as two and a half months and form shape through interaction with others (Saarni, 1999). This standpoint is a key component of differential emotions theory, first posited by Izard (Izard & Malatesta, 1987) and which has remained popular despite being contested by others (Malatesta, Culver, Tesman & Shepard, 1989b; Izard, 2001; Losonczy, 2004). For Malatesta, this is part of a pre-adaptation on the part of the infant towards the assimilation of emotional stimuli and building of response patterns within their environment. Upon this emotion base larger emotional systems are built: a maturational process which is of course linked to cognition and learning, the development of personality and is therefore a result of experienced life events, relationships and emotional biases (Strongman, 1996; Izard, 2001). Differentiation of emotion in transitions between emotions will be examined in the third study this thesis. The development of emotional competence, however, is strongly tied to the child's social environment and close emotional relationships (Dunn, 2003) particularly within the first three years. Influences in emotional and personal development will include the child's cognitive appraisal of life events and relationships, including the meaning they convey to past and new events. The constant process of attribution of mental states in the explanation and prediction of behaviour is a common factor in all but autistic persons for whom core deficits traditionally make this type of 'mind reading' difficult if not inaccessible (Zeman, 2001). Despite these deficits there is evidence that higher functioning autistic spectrum individuals have the potential to learn to appreciate and understand more complex emotions and

social interaction, along with a basic understanding of theory of mind by the time they reach puberty (Begeer, Koot, Rieffe, Terwogt & Stegge, 2008).

Children also learn to regulate their emotional responses terms of what they cognitively appraise to be the correct response, both in the light of how others in their close relationships have responded to (their) previous emotional displays, and in view of the emotional displays of significant others in their lives. New events will be interpreted not only objectively but in the light of past experience and prior events. Deficits in children's emotional self-regulatory systems (in terms of accepted norms) may result in noncompliant and manipulating behaviour in developmentally challenged/developmentally delayed children (Kopp & Wyer, 1994). Like personality, emotional competence is based on internal coherence as well as other-dependent factors; it cannot be factually 'learned' but emerges through a dynamic social process. It is not difficult to see how a child exposed in early life to maladaptive emotional patterns might grow to interpret emotional signals and stimuli differently than typically developing peers. At the same time, healthy emotional development may actually enhance cognitive development in the early years (Dunn, 1995). Others go further and suggest the understanding of cognitive states arises only through an earlier understanding of emotional states (Bartsch & Estes, 1997). An important part of emotional development is the understanding that emotional elicitors can come from within oneself as part of internal mental processes as well as from without (for example environmental triggers, including the behaviour of others). Early emotional responses are mainly goal directed (want/not want) which from age two to three expand to include 'like/not like' in others (Wellman & Banerjee, 1991). By the age of four to five years young children can equate want/like with the beliefs and expectations of others and have been found able to predict the emotional response of another to a stimulus by incorporating goal differences of others from themselves (Wellman & Banerjee, 1991); a complex cognitive process.

1.2.3. Perception as a Key Competency

Although open to challenge, many theorists have proposed a model of basic, universal emotions for which neurophysiological markers and substrates can be identified (Ekman, 1992). Basic emotions, where proposed, are generally held to be the building blocks of further, more complex, emotions. Six basic emotional facial expressions were originally claimed as universally innate: happiness, sadness, surprise, anger, disgust, fear (Darwin, 1899; reprinted 1998); other theorists postulate different basic emotions, but all agree they are linked with survival mechanisms (Ortony & Turner, 1990) and serve similar functions: avoidance, approach, interest or distress. Extensive studies have confirmed there is a universal repertoire of

facial expressions and emotional awareness and that this is a cross-cultural ability (Ekman et al., 1987; Ekman, 1992; Ekman, 1999; Ekman, 2003).

1.2.3.1. Perception in Typical Development

For some theorists the concept of basic emotions is central to emotion theory (Panksepp, 1982; Plutchik, 1994); for others it is not (Ortony & Turner, 1990). However, it has been generally concluded that children from an early age distinguish basic emotions from facial expression. Harris proposes that pre-adoption tests by Bühler and colleagues in the Kinderübernahmestelle in the 1930s evidence a link between recognition of facial emotions and social and emotional development (Harris, 1989). Infant reactions to facial and vocal expressions of happiness, anger and sadness were recorded in an attempt to assess their social development. Even five-month-old infants responded, largely appropriately, to happy or angry facial displays. Although these early experiments have been criticised, later support has emerged for the premise that emotion recognition is present in early infancy; 10 week-old infants successfully discriminate three emotions: happy, sad and angry (Haviland & Lelwica, 1987); nine month infants express joy in response to their mother's joyful facial expressions and show sadness, anger and gaze aversion during a 'sad' condition, supporting differential emotions theory (Termine & Izard, 1988). Even four, five and seven month infants were found to discriminate the emotions 'happy' and 'sad' in a habituation test, but required vocalisation along with facial expression to differentiate 'angry' to 'happy' stimuli (Caron, Caron & MacLean, 1988).

Cross-cultural studies claim infants as young as 18 months are capable of interpreting another's desire from their facial emotional display (like pleasure or disappointment), even when the desires are different from their own (Repacholi & Gopnik, 1997). From the age of two years children develop the ability to interpret emotional displays in others and select an appropriate response from their own emotional repertoire (Zahn-Waxler & Radke-Yarrow, 1990). By three years of age recognition of facially expressed emotion has been reliably predicted, (Izard & Read, 1986), although the interpretation of these expressions does not always fit with adult labels; the valence may be the same although the finer interpretation may be different. The ability to recognise four basic discrete emotional states in others: happiness, anger, fear and sadness, is thought to be well developed by pre-school years, with the appreciation of complex emotions and subtle emotional state changes (either through facial, vocal or postural changes) requiring a more sophisticated understanding and perception.

However, the ability to perceive emotion in oneself and in others (including emotional state and emotional intent) cannot be an exact science and neither is it based solely on facial expression.

Autistic individuals can be taught to recognise basic facial patterns which concur with emotional content, but will still miss subtle nuances in emotion in others, possibly because of ongoing problems with gaze attention (Frischen, Bayliss & Tipper, 2007). Perception, in terms of emotional processes, is not a matter of stimulus awareness and fixed assessment or interpretation. A furry four-legged animal with a tail, ears and emitting a bark may be perceived as ‘dog’, if we possess the prototype for dog. Indeed, infants of three to four months have been shown to be able to distinguish the silhouette of a ‘dog’ from ‘cat’ head in a series of novelty-familiarisation experiments using habituation techniques (Quinn, Eimas & Tarr, 2001), although they are not able to consistently differentiate between basic level categories (such as dogs and horses) in object manipulation tasks (Mandler, Bauer & McDonough, 1991). However, we perceive and respond to emotional exemplars in an increasingly selective manner, determined not only by familiarity but our own personal experience and accompanying cognitive associations. Subjectivity and meaning are intrinsic aspects of emotional perception.

In addition, few emotions even in early childhood are linked to facial, vocal or postural expression alone (Saarni, 1999). Children quickly acquire a more complex understanding of emotions (linked to eliciting situations, beliefs and desires) than can be provided by physical indicators such as facial expression, although facial expression of emotion serves as an early moderator of behaviour; for example maternal emotional displays act as a regulator of infant behaviour in situations of uncertainty (Sorce, Emde, Campos & Klinnert, 1985). Emotional understanding requires further cognitive complexities as the same situation can elicit different emotional responses in different people dependent upon personality and situational factors (Barrett & Campos, 1987), in line with a functionalist perspective; motivational processes are essential factors in the emotional perception of an environmental incident (Campos, Campos & Barrett, 1989).

Perception of emotion, therefore, is not as simple as matching a prototype (for self or others) but is dependent upon many other factors, including personal emotional expectancies and schemas. Recognising emotion in others is not as simple as following a set of pre-defined rules but is nevertheless an important feature in emotional competence. Emotion perception has been confirmed a good indicator of overall emotional competence in adults (Gilbert, 2001) independent of measures of intelligence (Roberts et al., 2006) and a prerequisite for effective emotion regulation and emotional growth (Izard, 2001). No sex differences in affect perception have been identified in previous studies.

1.2.3.2. Perception in Atypical Populations

Whereas good perceptive skills have been linked to competence in emotional regulation and expressivity (Saarni, 1999; Saarni, 2000), inaccurate attribution of intent can be the consequence of poor emotional adjustment (Schultz, Izard & Ackerman, 2000) and can affect responses towards others. Negative emotionality and poor self-regulation can lead to adjustment problems that increase the impact of risk factors (demographic, social, economic, etc.) for primary aged children, and have been linked to the development of behavioural problems (Lengua, 2002). Distortions and biases in emotional perception have been linked to behavioural disorders (Sharp, 2001). The ability to perceive accurately must be linked to an ability to respond appropriately for an equitable outcome to an emotive situation. The ability to understand that one's own emotional state is linked to internal thoughts and processes (intrapersonal understanding) and not just external events (such circumstances or the behaviour of others) is not present in infancy but is a developmental process which may be delayed or unavailable to children with behavioural disorders as well as those with autistic spectrum disorders (Flavell, Flavell & Green, 2001). Children with behavioural problems are more likely than their peers to have poor perception of internal affect and quality of emotional experience (Kusche, 1995; Izard et al., 2001). Children with conduct disorder are less able to contemplate realistically the consequences of their own actions and are likely to be 'hyper alert' to negative emotional signals from others, responding confrontationally (Dunn, 2000) and have an immature emotional repertoire (Hughes & Dunn, 2000). Emotional perception can potentially be affected by distorted emotional schemas and expectancies and will be examined in Study 2 (emotion appraisal) with typically developing children and in a comparative analysis in Study 4.

1.2.4. Empathy as a Key Competency

Empathy is the ability put oneself into the emotional position of the other and is demonstrated by the ability to provide an appropriate social response to the emotional display of another. The development of empathy requires a child to respond cognitively to cues given by another; either an exact match (i.e. interpreting anxiety as anxiety) or a general agreement as to emotional tone or valence; for example interpreting anxiety as general sadness. The latter is much more likely to occur in younger children who lack the ability to cognitively process all available information. However, very young children may be empathically aroused without specific cognitions. Empathy does not only occur in response to a seen display, however (Hoffman, 1986). It can take a vicarious form in responding to the plight of others in their absence, or in response to written information or hypothetical scenarios; it can also emerge through the process

of cognitively interpreting the situation placed upon another. This ability to identify with and consider the feelings of others is thought to underlie early emotional displays such as comforting behaviours or verbalised sympathy directed towards the other.

1.2.4.1. Empathy in Typical Development

The ability to empathise has roots in infancy with the manifestation of contagious crying (Zahn-Waxler, 1991) and contagious smiling (Haviland & Lelwica, 1987); although the former has been disputed as having any real connection with empathy at this early stage (Dondi, Simion & Caltran, 1999). Although this is considered to be more an involuntary motor mimicry it is proposed to provide an underlying neural basis for emotive response to emotion in others (Hoffman, 1975; Sagi & Hoffman, 1976). Response to emotion in others progresses in complexity throughout childhood and into adolescence; closely related to general social development.

The point at which the response becomes cognitive and premeditated is thought to correspond with the dawning of awareness of others as intentional agents (around the end of the first year) culminating in an understanding of other's minds (Denham et al., 2002). Comforting behaviour has been observed in 12 to 24 month infants (Zahn-Waxler, Radke-Yarrow, Wagner & Chapman, 1992). In a longitudinal study prosocial behaviour increased in variety and frequency over the second year, as did attempts to understand and respond appropriately to the plight of the other. Children in their second year were observed using basic physical moves in response to distress in others, such as patting or offering comfort objects (Zahn-Waxler et al., 1992). The emergence of empathic behaviour at this age is thought to be related to perspective taking abilities (Zahn-Waxler, Radke-Yarrow & Brady-Smith, 1977) with the child responding naively to a melancholy expression almost as an automatic response and mimicking the previous action of their caregiver to their own distress. The child is capable of an emotional response but largely without the cognitive interpretation which accompanies later emotional display.

By the age of two years distinct differences appear in whether children will respond to the distress of others (Zahn-Waxler, Radke-Yarrow & King, 1979), with empathic response to observed incidents ranging from five to 50 percent of the time across the sample. This disparity has explained in part by the quality of affection the child has received: mother's care-giving has been positively correlated with the frequency of incidents, suggesting that early environment and/or parental example can affect the child's development of empathy (Zahn-Waxler et al., 1979; Eisenberg, Fabes, Carlo, Speer, Switzer, Karbon & Troyer, 1993). Whether the child is simply reflecting the parental example or their awareness and social development been advanced by their favourable treatment by the caregiver is unclear. What is clear is that the

quality of empathy in a young child is connected to some extent with the quality of care-giving they receive. The assumption has been made that visible empathic response is a good indicator of internal empathic concern (Zahn-Waxler et al., 1979); it could be argued that the quality of fellow feeling (or affective empathy) is not measured by this approach, only the decision or ability to act on the feeling. This of course could well be linked to the child's schema of appropriate response to other-distress: a child who has not witnessed altruistic response to distress from early role-models may be ill equipped to choose the correct response to distress in emotive situations, despite a wealth of feeling.

Both comforting and antagonising behaviours have been observed from two to four year olds in response to the distress of younger siblings (Dunn, Kendrick & MacNamee, 1981). The incidence of antagonising, as well as comforting, behaviour from the third year suggests that the child now has a cognitive appraisal of the emotional state of the other and of the consequences of their response (Zahn-Waxler et al., 1992). That the child may choose to antagonise rather than help the distressed sibling shows a capability at this early age to manipulate personal emotional responses in order to achieve a selfish goal as well as an altruistic one. The child has the cognitive capacity to interpret the physical and psychological signals of others and respond either empathically or non-empathically. Such changes in emotional response to others are considered by developmentalists such as Piaget (1965) to be part of a general cognitive shift from hedonism to empathy during the second year of life, where the infant becomes aware that their behaviour has the possibility of influencing others. This basic component of cognitive other-awareness is often labelled 'theory of mind' (Meltzoff, 2002).

In a study of three and four year olds, those who had succeeded in tests to establish the ability to take another's perspective (early theory of mind) were more likely to comfort a younger sibling when the mother left them alone than their non-aware peers (Stewart & Marvin, 1984), suggesting a cognitive component to empathic response. Perhaps the roots of the development of empathy lie in a cognitive awareness which can be enhanced or become maladaptive depending upon the quality of the child's early environment.

Typically developing preschoolers showed non-egocentric perspectives of other's feelings and were able to respond appropriately in both free play and semi-structured conditions (Denham, 1986). However, matching of empathic behaviour to affect displays in another study showed positive affect displays were more likely to achieve appropriate response than sad displays and this was linked to the frequency of the child's own positive affect (Strayer, 1980). The question of how strongly primary aged children's choice of appropriate behavioural responses (cognitive

empathy) can be equated to the strength of their fellow-feeling (affective empathy) will be addressed in Study 1 of this thesis.

In middle childhood, empathy has been related to the degree of effortful control; the ability to inhibit a dominant response in order to behave appropriately (Valiente et al., 2004). Empathic concern and perspective taking become significant predictors of prosocial behaviour (Litvack-Miller, McDougall & Romney, 1997). A good capacity for empathic understanding is generally considered a facilitator of pro-social behaviour (Eisenberg & Miller, 1987). This pattern has been confirmed throughout adolescence and has been observed in laboratory situations using undergraduate students (Mehrabian & Epstein, 1972), although a laboratory sample has limited generalisability. Empathy in adolescents has been related to both moral development and to maternal child-rearing practices, in the case of boys only (Eisenberg & Mussen, 1978). A person who has a high level of emotional empathy is expected to be less likely to engage in aggressive behaviour and more likely to exhibit pro-social helping behaviour (Bryant, 1982).

Empathic response, as so far discussed, has taken the form of responding with caring to the distress of others. However, this is not the only form of empathic response, according to recent research (Vitaglioni & Barnett, 2003). Empathic anger is proposed as a legitimate form of empathic response, engendering both helping behaviours and punishment of perpetrators of the distress of others. The fact that an adult sample was used does not alter the conclusion that in some circumstances, taking into account temperamental differences, anger may be an appropriate emotional response. This raises two issues in measuring emotional competence: firstly, whether it can be considered that an angry response of a child to a situation requiring empathic response is always entirely inappropriate and secondly, if empathy can vary legitimately in its expression, can it be truly said that empathic response is a good judge of emotional competence?

1.2.4.2. Sex Differences in Empathy

In tandem with developmental differences, sex differences are frequently found in measures of empathy. In a self-report of empathic concern using children from five to 12 years boys showed less overall empathy than girls (Bryant, 1982). Subsequent studies have confirmed sex differences in overall empathy with girls being more empathic overall and older children more empathic than younger, confirming a developmental process (Litvack-Miller et al., 1997). In a study of facial and verbal responses to emotionally provocative videotapes a positive relationship was found between age and verbal empathy but not facial expression (Strayer & Roberts, 1997). It was also found that girls had higher overall empathy scores than boys.

Strayer concludes that there is a development process to the expression and report of empathy, in particular as regards verbal reports. Empathy was found to be related to general prosocial behaviours in boys, but not in girls, where empathy was related to relationships within friendships only (Roberts & Strayer, 1996).

Empathy research in adults has regularly shown sex differences; girls and women consistently score higher for empathy than boys/men (Feshbach & Feshbach, 1969; Hoffman, 1986), although this does not necessarily extend to perception of emotion in others (Hoffman, 1977). Differences in the type of prosocial helping behaviour have been identified (Eagly & Crowley, 1986) with women more readily offering emotional and nurturing support and men more likely to engage in physical proactive helping behaviour.

Interestingly, apparent differences in empathic concern between males and females were found to be isolated to self-report measures (where females admitted to higher levels of empathy than males) and to 'reflexive crying', but were not apparent in observations of either physiological response or non-verbal reactions (Eisenberg & Lennon, 1983). As Study 1 will use self-report as a measure of empathy, however, it is expected that boys will score lower overall than girls.

1.2.4.3. Empathy in Atypical Populations

A maladaptive pattern of empathic response in children with atypical backgrounds is well documented. Abused toddlers have been found to react to the distress of others in an inappropriately aggressive manner (George & Main, 1979), rarely with comforting or prosocial behaviour, unlike non-abused peers (Howes & Eldredge, 1985). Environmental risk factors for maladaptive responses to the needs of others include early abuse, parental depression and marital discord (Zahn-Waxler & Radke-Yarrow, 1990). Early environment obviously has a part to play in the expression of empathy regardless of the ability to discern and evaluate the emotional response of others. Whether differences in empathy are due to differences in cognitive appraisal or difference in goal-orientation is unclear. In the Howes and Eldredge (1985) study only abused toddlers responded aggressively to other's distress and only maltreated toddlers resisted friendly overtures by other children, suggesting that an element of cognitive appraisal of motives could be involved in the difference between responses. Small sample sizes in the study make it difficult to infer general principles from the results, however.

A developmental pattern of increased empathy with chronological maturity seen in non-delinquent controls aged 12 to 18 years was not observed in a comparative sample of delinquent adolescents (Ellis, 1982). The delinquent sample comprised three sub-groups: neurotic, psychopathic and undiagnosed. Regardless of age the neurotic sub-group showed lower ratings of empathy than the psychopathic sub-group. As psychopathic tendencies are generally thought to include a lack of empathy (and neurotic tendencies to include overly emotional responses to stimuli) this was a surprising finding. Teacher ratings of neither aggression nor anxiety were found to be negatively correlated with empathy in a subsequent study of 10 year-old boys, despite previous predictions (Gonzalez, Field, Lasko, LaGreca & Lahey, 1996).

Although high levels of empathy in children might expect to be related to pro-social behaviour, or at least a moderation of aggressive acts, evidence has been contradictory. In an examination of 40 children between the ages of four and seven using story-based scenarios, Feshbach & Feshbach, (1969) found a positive relationship between empathy and the levels of aggression in girls (higher empathy in girls was linked to high aggression) but results for boys were equivocal. A positive relationship between aggression and empathy was also found in boys aged four to five, but a negative relationship found in boys aged six to seven years (Feshbach & Feshbach, 1969). No negative correlation between empathy and aggressive externalising behaviours has been found in either three to four year olds (Strayer & Roberts, 1989) or five to 12 year olds (Bryant, 1982). No deficits in empathic response were found in four and five year-old preschoolers showing externalising behaviour who seemed to find no conflict between care for others and the obvious discomfort their behaviour was causing others. Externalising behaviour in toddlers (destructive and aggressive actions) was positively correlated with measures of empathy, suggesting that in early childhood behavioural problems are not due to a lack of empathic awareness of others (Gill & Calkins, 2003).

However, preschool children have recently demonstrated a positive relationship between high empathy and pro-social behaviour, good peer relationships and less aggression (Findlay, Girardi & Coplan, 2006). The study also used vignettes but supplemented this with parental report of empathy and aggression. It has to be considered that there has been a notable increase in teaching on empathy from pre-school upwards over the last 20 years and this may reflect in the child's ability to choose an empathic scenario in response to vignettes. This has been confirmed with preschool and early school years children (Hughes, Tingle, & Sawin, 1981). Older children demonstrated better cognitive empathy skills than their younger peers, but preschooler's skills could be improved with training and an opportunity to reflect on their responses. It may be that empathy may be necessary, but not sufficient, to engender pro-social response.

Deficits in empathic behaviour in children with externalising problems were observed in a longitudinal study (Hastings, Zahn-Waxler, Robinson, Usher & Bridges, 2000), but only from ages six to seven onwards. Boys with externalising problems were more likely to be callous towards others at both stages. Deficits in dispositional and situational empathy have been observed in severely disruptive boys between the ages of eight and 12 in a special school (de Wied, Goudena & Matthys, 2005). Disruptive boys responded less empathically to empathy-inducing vignettes portraying sadness and anger than did typically developing controls, but equally empathically to happiness. Children with conduct disorder have been found to possess an atypical understanding of emotional consequences and emotional expectancies, minimising the effects of victimisation and seeing prosocial emotions as avoidant rather than altruistic (Arsenio & Fleiss, 1996).

Empathy has been positively associated with prosocial behaviours in children from five to 13 years (Roberts & Strayer, 1996) but it cannot be assumed that an increase in empathic skills will necessarily lead to a reduction in externalising behaviours (Gill & Calkins 2003). The question of whether children aged seven to 11 who exhibit behavioural problems, respond inappropriately to normal classroom demands and behave aggressively towards peers are low in affective or cognitive empathy, in comparison with typically developing peers, will be addressed in Study 1 (with typically developing) and Study 4 (with behaviourally challenged) children.

1.2.5. Emotional Expressivity as Key Competency

Emotional expressivity includes both the expression and regulation of emotion. Emotion regulation is the ability to moderate emotion as appropriate to the situation, particularly where there may be undesirable consequences (this could include embarrassment, insult to others or in order to achieve a goal). Regulation of emotional expression has close links to empathy in that the response of the other to the emotional display is considered; as disappointment at one's own failure in the light of another's success. At other times expression of emotion may be subverted for entirely deceptive reasons and is linked to self promotion. Mastery of one's emotions and their effect on others is a crucial aspect of business relations (Goleman, 1998). An important aspect of expressivity in development is emotion regulation; the ability to respond appropriately to one's own feelings in order to minimise the likelihood of distress or confrontation with others (Gardner, 2006).

1.2.5.1. Expressivity in Typical Development

There is evidence that regulation of emotional expressivity is a learned capacity and as such follows a developmental path: as the child matures so does their ability to discern and discuss mixed emotion and emotional states. They also become more aware of social and cultural conventions and schemas regarding the expression of emotional impulses. Both these aspects are important for emotion regulation. Within the first months after birth, the expressive quality of interaction from primary carers (particularly the mother) can facilitate the development of emotional expressivity (Montague & Walker-Andrews, 2002). This includes the type of emotion most readily expressed (positive or negative affect) and may well provide the bedrock for the ability to predict and respond appropriately to emotional displays in later childhood.

Whereas for the infant emotional expression is largely unrestrained and spontaneous, by age three to four children have developed the ability to conceal their emotion from another if it is expedient (Cole, 1986). This may be a natural progression from the ability to manufacture facial expressions during play, which generally occurs during the second year of life. However, this early concealment has been found to be qualitatively different to that which occurs in older children. Young children are able to hide their disappointment but do not overtly distinguish between their feelings and their actual facial expression. Cole concluded that younger children appear to suppress emotion in an attempt to follow display rules rather than out of concern for the emotional well-being of the other (Cole, 1986). This premise has been confirmed: children from six years of age show an ability to distinguish clearly between expressed emotion and experienced emotion which is not apparent in younger children; a maturational differentiation consistent across western and oriental cultures (Harris, Olthof & Terwogt, 1981).

Distinct differences in the conceptualisation of emotional control and cognitive coping mechanisms have been found by examining children's personal reports. Children aged six, 11 and 15 were questioned as to whether they could 1) pretend a different emotion in an unpleasant scenario and 2) change their experience of emotion. A distinct developmental sequence was found between the ages of six and 11, but little thereafter, with only older children considering the hidden mental aspects of emotional experience: younger children focus on overt and displayed aspects of emotion (Harris & Lipian, 1989). In addition, all children could distinguish between changing the display of emotion and changing the experience of emotion. However, in children of six years of age the concept of coping strategies was rarely found; those that did answer suggested physical coping strategies such as going outside to play or calling a friend.

The role of cognitive processing in coping strategies was not apparent until aged 10 to 11 (Harris & Lipian, 1989), when children were able to report using distraction activities in order to cope. From around the age of 15 children were not only able to suggest cognitive coping strategies but discuss them as well, showing an ability to consciously change their own cognitive reality (Harris & Lipian, 1989). However, having the ability to discuss your cognitive processes is not the same as having a cognitive component to expression. Cognitive development definitely influences emotional expressivity, but these studies suggest it would be difficult to elicit the process with self report before adolescence. Table 2 below shows some of the studies that have looked at individual differences in emotional expression.

Sex	Fuchs & Thelen 1988 Eisenberg & Lennon 1983 Weinberg, Tronick, Cohn, & Olson, 1999
Personality and Temperament	Rothbart & Bates 1998 Fox, Sobel, Calkins & Cole 1996
Cultural Differences	Gordon 1989 Harness & Super 1985 Lutz 1983, 1985 Buck & Powers, 2005
Pathology inducing Circumstances	Allessandri & Lewis 1996 Casey 1996

Table 2: Individual differences thought to influence emotional expression (with thanks to Saarni 1999)

One area where developmental differences in emotional expression have been investigated is the influence of patterns of control and facilitation of emotion in parents. Parental expectations of their children's behaviour and emotional responses were found to be based not only on observation of the child's actual past behaviours but on their own emotional response patterns (Gottman, Katz & Hooven, 1997). Not only did parental control of emotional expression impact upon the child's own emotion regulation but so did the degree to which emotional issues were discussed within the family; how often and with what quality. Hence emotion regulation was determined to some extent by the parents' own abilities to attend to emotional issues and 'scaffold' their child's development. The level of meta-emotional functioning (capacity to have emotional feelings about emotions; incorporating an emotional 'third man' in cognition), where present in adults and encouraged and nurtured in their children, was found to be predictive of emotional and academic 'successes' within a three year time-span (Gottman et al., 1997). An example of this would be the shame felt at what is considered to have been an inappropriate display of negative emotion (anger or distress for example). Paternal emotional expressivity was

found to be a key factor in acceptance of children by their peers as well as how good or poor were their peer relationships, a factor confirmed by other studies (Roberts & Strayer, 1987).

1.2.5.2. Sex Differences in Expressivity

In previous self-report measures boys consider themselves generally less emotionally expressive, particularly regarding negative emotions, than girls (Fuchs & Thelen, 1988). Boys were not only less likely than girls to communicate sadness within the family but also less likely to communicate it to the father than to the mother. Boy infants as young as six months show a more limited capacity for self-regulation than female infants (Weinberg et al., 1999). Sex differences were apparent in parental willingness to accept and respond to negative emotions (for example anger, sadness) in their children, with fathers being less aware of their own sadness, less able to assist their children in this respect and more oriented towards anger than mothers (Saarni, 1999).

Sex differences have been found in expressivity viewing emotional films with female undergraduates more expressive and showing higher rates of skin-conductance than males. This difference was found to be mediated by expressivity within family backgrounds (Kring & Gordon, 1998). A pattern of higher reported expressivity in females has been found across the lifespan, even into old age (Levenson, Carstensen, Friesen & Ekman, 1991).

1.2.5.3. Expressivity in Atypical Populations

Parental attitudes to anger affect their children's expression of anger outside the home; for example in the family where anger is taboo or seen as bad the child is less likely to express anger in the family situation but likely to express it disproportionately towards peers (Fuchs & Thelen, 1988). This pattern may well have consequences for emotion regulation in boys, especially those with behavioural difficulties. Other possibilities are less widely researched or less easy to support. Certain aspects may mediate but not predict outcomes; there may be many other contributing factors; for example parental education, maternal depression, abuse, demographic or economic variables. Maltreatment in childhood and exposure to domestic violence are likely to result in inadequate and atypical emotion regulation strategies (Maughan & Cicchetti, 2002) and poor peer relationships.

The ability to oversee one's own emotional 'performance', albeit unconsciously, has something of a protective factor in preserving good social relationships, whereas a lack of emotional oversight is associated with poorer social functioning in school-aged children (Gottman et al., 1997). Whilst there are limitations of this study (no attention to mitigating or compromising factors like economic deprivation, family circumstances) it raises interesting issues of perception of emotional experience as a crucial part of emotional competence: specifically the ability to efficaciously regulate emotional arousal. Children's emotion regulation often echoes parental response patterns, in line with parental expectations of the child (Chapman, 1981). Strong links between parental empathic style and the active expression of empathy has been found in children from five to 13 years (Strayer & Roberts, 2004). In combination with emotional insight and role taking, parental anger and empathy styles accounted for 62% of the variance in children's expressed empathy. Empathy was found to be mediated to some extent by anger, which was again related to parenting style. Parental style and behaviour accounted for 32% of the variance in emotional expressiveness.

Environment and example obviously plays a large role in establishing a child's emotional patterns. Peer response is also known to regulate the emotional displays and coping strategies of other children (Saarni, 1999). Associating with other externalising children may exacerbate symptoms in a child who is having emotional problems; conversely a rise in social competency may be seen in a child who is accepted into the company of other children with superior social skills. Larger dynamic frameworks (such as a classroom structure) may have an effect on a child's comfort with an emotional repertoire; however this does not explain why some children are consistently 'hard to handle' despite being in the presence of very positive peer dynamics; for example a class obviously uncomfortable and disapproving of inappropriate behaviour. A teacher's own behavioural response patterns may affect the way pupils respond to situational and emotional cues in the classroom. The learning of display rules for emotional expressivity requires not only cognitive development and the awareness of internal emotional experience but a healthy socialisation with family and peers (Saarni, 1979).

As previous studies have established that children prior to adolescence are unlikely to be able to discuss their own process of emotion regulation (Harris & Lipian, 1989), this current study does not focus heavily on the regulation of expressivity, although some questions on emotional competence do touch on this area. It would be expected that girls will score higher in self-reports of emotional expressivity than boys, particularly in areas of sensitive emotion, for example crying and sadness (Saarni, 1999).

1.3. BEHAVIOURAL PROBLEMS IN SCHOOLS

This section of the introduction looks at the incidence of behavioural disturbance in schools and looks at what evidence there is that there may be different attributional thinking styles in children with such problems.

1.3.1. A Rise in Problem Behaviour

A lively boisterous demeanour has long been the stereotypical idea of ‘boyish’ behaviour. The portrayal of the typical boy as getting into fights, exhibiting mischievous behaviour and having a predilection for getting grubby inspired writers of the past like Richmal Crompton to pen the character of the ‘loveable rogue’ typified by ‘Just’ William Brown. The 11-year-old school boy came to represent the archetype British schoolboy, adventurous, ingenious and constantly in trouble. William, however, still showed an implicit respect for his elders and the stories have a core of morality which extends to the character of William himself. In contrast, children who misbehave in today’s school environment are seen as anything but loveable or inspiring.

Whether or not children, or the expectations of society, have changed since the early 1970’s the occurrence of unacceptable behaviour amongst school-children is viewed as a growing problem. This may in part be due to a universal deterioration in basic respect for authority which often accompanies behavioural problems in Western schools. Over the last two decades however there has been an increased emphasis in the media in what appears to be a growing problem of negativistic, hostile and defiant behaviours in young children and teenagers; not only in boys but girls too. Whereas the 1960’s saw an emphasis on unruly teens and twenties, recent years have highlighted problems in much younger, primary aged children as well. Correspondingly there has been a surge of interest in the research arena as to the causes, demographics and long-term consequences of dysfunctional behaviour in the young.

Co-morbidity in children in special schooling of behavioural disturbance with other psychiatric disorders is high; 89% of pupils in one school surveyed (Cassidy, James & Wiggs, 2001). This co-morbidity largely involved Conduct Disorder (CD) and Attention Deficit Hyperactivity Disorder (ADHD) as well as emotional problems such as depression and anxiety. In mainstream schools some, but not all, disruptive behaviour has been attributed to ADHD and ‘attention deficit’, which in turn has been linked to poor academic outcomes (Biederman et al., 2004). Identification of attention and hyperactivity disorders has a strong focus in today’s school

environment (Cassidy et al., 2001) and long-term medication is common, even for children as young as three years of age. Since physician Heinrich Hoffman first described the syndrome in 1845, criteria and categorisation for the disorder has broadened. The current Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, 1994) provides an inclusive definition and description of ADHD which may well have contributed to the rise in diagnosis amongst children with behavioural problems. Correspondingly co-morbidity of ADHD with Oppositional Defiant Disorder (ODD) is high: a third to half of all children diagnosed with ADHD in the United States according to the National Institute for Mental Health (Bethesda, 2004). Approximately 20 to 40 percent of these children are expected to eventually develop CD. Similar figures can be found in the United Kingdom: diagnosis rates of ADHD are somewhat lower (this may be due to more stringent criteria) but co-morbidity rates with ODD or CD are still high (Taylor, Sandberg & Giles, 1991).

A review of three studies using parental reports of teenage behaviour over the last 25 years has assessed the extent to which conduct problems, emotional problems and hyperactivity in general have become more common in the UK (Collishaw, Maughan, Goodman & Pickles, 2004). Results were uncompromising: based on reports using the same measures across time (minimising some major methodological problems of previous studies) Collishaw et al (2004) found conduct problems have increased significantly over the whole of the period between 1974 (first study) and 1999 (third study), in each and every family type and socio-economic category and in boys and girls similarly. Emotional problems significantly increased between 1986 (the second study) and 1999. Hyperactivity increased between 1974 and 1986 and since 1999, although this was harder to assess as reliable measures have only recently been developed and the criteria for hyperactivity and hyperkinetic disorder has changed over this time. Increases in reports of hyperactivity were limited to boys; reports of hyperactivity in girls remained stable over time. Although Collishaw et al (2004) focused on children aged 15-16 years such trends do not begin at adolescence but are part of a compounding problem that will be manifest in primary aged children as well. The increase in reports of emotional behavioural problems, as with hyperactivity, may reflect a greater tendency towards classification due to a growing awareness of the connection between such conditions and poor academic outcomes.

1.3.2. Disruptive Behaviour: Different Perceptions

Behavioural problems in school children not only negatively influence classroom dynamics but can have profound effects on the academic future of the children themselves. It is sadly the case that many children continue to present problem behaviour in schools despite corrective measures and unpleasant consequences (detention, exclusion). A non-discriminatory cry for

attention may explain persistence in some cases, but other children continue to fail to respond to positive treatment even within specialist school settings, where attention is paid to reward and good behaviour. Personality traits and environmental factors may go some way to explaining why some children get entrenched in a chronically disturbed behavioural pattern and others do not. Certainly some children with behavioural problems see tangible rewards in maintaining anti-social behaviour; this may take the form of vicarious pleasure at the domination or the distress of others, or the continuation of attention from adults and peers alike (Boldizar, Perry & Perry, 1989; Hall, Herzberger & Skowronski, 1998; Pardini, Lochman & Frick, 2003). The child who places a high value on the outcome of externalising behaviour is unlikely to want to desist. This, in conjunction with a tendency towards psychopathy (callous and unemotional traits typified by a lack of involvement in the emotional state of the other) could be an indicator of why some children persist in such behaviour despite intervention (Pardini et al., 2003). The question remains as to whether the increase in reported behavioural problems in young people is a result of changed perception on the part of educators or a change in attitude on the part of those being educated.

1.3.2.1. Behavioural Problems: Appraisal Patterns

Anecdotal evidence from teaching professionals suggests children who are exhibiting behavioural difficulties in the school environment are more likely to interpret non-verbal signals from others as being confrontational compared to their well-adjusted peers.³ This includes ‘a student who attributes aggressive motives and behaviour to a teacher, who in turn does not perceive they are treating the student in a confrontational manner’⁴. Of course the child could simply be more sensitive to a tendency for teaching staff to behave differently towards children they know are likely to present with behavioural problems. Expectations of such a child will certainly be influenced by the difficulty experienced by members of teaching staff involved. However, in a longitudinal study of children aged five to nine years, children with behavioural problems did indeed appear to perceive anger where none exists (Izard et al., 2001). This had a detrimental effect on classroom dynamics and learning.

Children with behavioural problems frequently appraise ambiguous actions of their peers as confrontational; an accidental physical incident may be misconstrued as a deliberate assault. This could be something as innocuous as a child being jogged by a peer in a queue or whilst engaging in a classroom activity which is perceived as a personal affront or deliberate attempt at

³ Conversation with class teachers and head teacher during preparation for Study 1, October 2001.

⁴ Conversation with class teacher, Primary Education, June 1997.

harm, requiring retribution⁵. Staff attempts to placate or solve difficult peer situations may also be perceived as intentionally confrontational; the child may claim they are being victimised or unfairly treated in comparison to the peer. Attributional bias in response to peer provocation in children showing aggressive externalising behaviour has been identified (Crick, Grotpeter & Bigbee, 2002). A higher level of aggression (based on teacher assessment) corresponded with greater anger attribution in preschool boys, although interestingly not in girls (Schultz et al., 2000).

Bias in recognition of emotion was more influential than recognition accuracy in affecting social behaviour in preschoolers; in particular angry bias, which was found to negatively influence social behaviour (Barth & Bastiani, 1997). Misattribution of anger towards others at such an early age, if not addressed, does not bode well for primary education and beyond, where early patterns become established both by familiarity and anticipated peer response. Indeed, a link between emotional behavioural disorders and an increased negative bias in 'reading minds' (second-order Theory of Mind) has been identified regardless of age, social background and IQ (Sharp, 2001). This bias was found to have high predictive value from the ages of seven to 11 in that negative patterns in middle childhood were predictive of the child's patterns on entering puberty. Emotionally disturbed boys (aged 10 to 16 years) attributed greater hostility to others in photographs of emotional interpersonal situations compared to less aggressive boys, suggesting an attribution bias (Nasby, Hayden & DePaulo, 1980). The increase in the tendency to attribute hostile intent was directly related to the degree of aggressive behaviour exhibited by the boys. Generalised attitudinal problems, including a defiant and hostile attitude towards authority figures, are common amongst children with entrenched behavioural difficulties.

A confrontational outlook of this kind could suggest: 1) a bias in perception towards negative or confrontational intent; 2) over-sensitivity towards perceived threat or 3) an enhanced ability to appraise the mental state or intent of the other. The third suggestion is unlikely in the face of evidence to the contrary (see Chapter 1.3.3.), but both other possibilities raise another issue: the appraisal of intentionality by the one of the other. Intentionality can be seen in this context as the perception of action intent in the other, rather than simply an appraisal of a state of mind. This evaluation, when it occurs, may become part of a shared social reality on the part of the teaching staff. A self-serving bias is a common manifestation in conflict; a form of attribution bias⁶ where the one ascribes the interpersonal confrontation purely to the personal characteristics of the other rather than considering the external factors of circumstance. What is

⁵ Reports from playground supervisors, conversation with Head teacher of Primary School, April 2002.

⁶ Attribution bias is the outworking of the Fundamental Attribution Error – a psychological principle describing the tendency of people to ascribe the cause of negative outcomes in others to personal characteristics rather than external sources or environmental factors, but to ascribe such negative outcomes to external sources, and so forth, when applied to themselves. This bias is reversed with regard to positive outcomes, that is a tendency to attribute success to internal characteristics in oneself but situation characteristics in others.

clear is that appraisal bias can and does happen in the education system and has been identified in various areas. There is a tendency amongst educational groups to attribute successes or failures in other ethnic groups to personal rather than structural (environmental or situational) causes; a bias that can be at least partially addressed by training (Lopez, Gurin & Nagda, 1998). Students of social science give far more weight to environmental causes of unemployment and poverty for a failure to succeed than do students from other disciplines, who tend to blame personal characteristics (Guimond, Begin & Palmer, 1989).

1.3.2.2. Behavioural Problems: Causal Attribution

One possibility for the continuation of difficulties beyond attempts at intervention may be the very fact that problem behaviour is being attributed to the character of the child, building a pattern of expectation that becomes a 'self-fulfilling prophecy'. Using hypothetical tasks, teacher's casual attributions of an aggressive act were found to be influenced by whether they thought the child intrinsically 'good' or 'bad' (Nesdale & Pickering, 2006). The level of punishment inflicted for bullying also varied according to whether the teacher liked the perpetrator or not. The authors cautioned that only female teachers were used in this study and further research should be done before making generalisations.

Parental influence, familial and environmental factors and other outside influences are often cited as being the cause of disruptive behaviour. As evidence, young offenders are often found to come from families where there is a disrupted family background: of 301 young offenders across England and Wales, 74% were from families where the family structure had broken down (Chitsabesan et al., 2006). How much family background is a predictor of emotional behavioural problems is unclear, but it is possible that a family background of aggressive or uncontrolled behaviour makes the child's early patterns seem less unacceptable and therefore unchallenged. Certainly a child is exposed early to patterns of violence and intolerance will be more likely to emulate or feel comfortable with such patterns. Such negative patterns may have a detrimental effect on the development of emotional competence.

However, in contrast parents tend to blame the child's problems at school largely on 'fairness of teacher's actions' and 'differentiation of classroom demands and expectations' as well as 'pupil vulnerability to peer influences and adverse family circumstances' (Miller, Ferguson & Moore, 2002). In other words, causes outside the home and to a large extent outside the child's control.

Mismatches between parent and teacher reports of whether certain children could be identified as having problems at school and home are common: (McGee, Silva & Williams, 1983; Miller, Ferguson & Byrne, 2000). Only in a minority of cases do both parties agree the child is having

problems at both home and school. Greater agreement may be found by asking pupils themselves which children they consider to be a problem in the classroom and comparing this to teacher report. One school, visited by the researcher, reported that this procedure had identified:

"...several children that have been reported by their peers as being disruptive or frightening, whose parents have agreed that the child has problems and are willing to work alongside the school to help improve the situation."

Primary School Teacher, Enfield.

A sample of 428 junior class teachers were surveyed across 10 Local Education Authorities as to their explanations for the special needs of children in their classes (Croll & Moses, 1995). Behaviour and discipline problems were attributed to parental and home factors in 66% of cases. This is to some extent confirmed by teacher observation, where a child frequently exhibits similar behaviour to that which is witnessed in the parent.

"I was having a lot of trouble with X who was constantly arguing back and confronting other kids over little things. I took time to explain to X that this was not the way to behave, but when I saw the mother at parent's evening I could see all the patterns that he (the child) was exhibiting. What chance did he have of changing his behaviour with his mum constantly reinforcing it?" Primary School teacher, Barnet⁷.

Of course, there is probably something of a self-serving bias in all these reports; a tendency to attribute positive factors to internal causes and negative factors to external causes. In a review of a French survey (Hilton, 1998) a self-serving bias in attribution was identified where teachers attributed 71% of problem cases and only 17% of successes to parental factors, whereas they attributed general pupil behaviour to themselves in 50% of instances and pupil successes to themselves in 87% of cases.

Pupils' own causal attributions for disruptive classroom behaviour are equally interesting. In a collaborative study with the Lancashire Educational Psychology Service, four main factors thought by pupils to explain bad behaviour in other pupils were identified (Miller et al., 2000). In a principle components analysis the strongest factor, explaining 15.9% of the variance, was found to be the fairness/unfairness of teacher's actions, with loadings on factors such as *'teachers shouted all the time'* (.67) and *'pupils were picked on by the teacher'* (.62). Interestingly, amongst other factors were *'adverse family circumstances'* with items such as *'there were fights and arguments at home'* (.80) and *'alcohol /drug abuse by family members'* (.72), although it is not clear whether this stemmed from the participants' experiences or whether they simply rated the statements as *likely* to cause other pupils to have problems in

⁷ Conversation with Primary school teacher at planning meeting, October 2002

school. This is an interesting distinction; when giving a child forced choice alternatives the child may well feel compelled to consider these in respect of the issue, rather than drawing on their own experience. *'Too much work'* (home and class related) was also cited as a reason why children would behave badly in schools. Of course there would be few children who would disagree that they were given 'too much work'.

This thesis does not set out to answer the question of whether or not there is a bias in appraisal on the part of adults who work with children. However, the tendency to attribute confrontational affect to others by children with behavioural disturbance will be examined as an integral part of emotional perception, which in turn is an aspect of emotional competence.

1.3.3. Perception and Emotion Appraisal

By middle childhood children will have an internalised image of how others behave towards them and how they expect to be treated, based on their own experience within their primary relationships (Weiss, 2002). If a child's needs have been met in a positive way their expectation of other adults, including their class teacher, is likely to be positive. This will be reinforced by a class teacher who will see the child as having a positive attitude within the classroom. Correspondingly, children with problematic primary relationships may well have a negative internalised image of how others will relate to them. This may result in a negative transference on the part of the child and negative counter-transference on the part of the teacher (Weiss, 2002).

Aggressive behaviour has been associated with deficits in social information processing (known as SIP) (Crick & Dodge, 1994). The child with deficits in SIP will be more likely if they have a hostility bias to attribute a hostile intent to another child in an ambiguous playground incident, for example, which leads to a confirmation and reinforcement of the behaviour and long-term incidence of maladaptive patterns (Howard & Godfrey, 2003). Aggressive boys aged seven to 13 years have been found to attribute more hostile intent, happiness and less guilt in response to vignettes concerning provocation by peers than typically developing peers (de Castro, Merk, Koops, Veerman & Bosch, 2005). They also generated more aggressive responses to scenarios and reported more anger than their peers. Antisocial behaviour has also been specifically related to a process of selective attention to hostile cues in preschool boys (Gouze, 1987) and a tendency to interpret as threatening ambiguous social clues (Orobio de Castros, Veerman, Koops, Bosch & Monshouwer, 2002). Later studies have reinforced the association between deficits in SIP and adolescent antisocial behaviour. Antisocial behaviour was seen in 16 to 18 year-old

boys as being a function of a low resting heart rate combined with deficits in SIP (Crozier, Dodge, Fontaine, Lansford, Bates, Pettit & Levenson, 2008).

A tendency to attribute hostile intent to others is most likely to occur in children with a pattern of reactive aggression, rather than proactive aggression (Dodge & Somberg, 1987). Reactive aggression is described as spontaneous aggressive behaviour prompted by an incident (which may be mundane) but which is perceived by the child as hostile or threatening and requiring of a response. In contrast, proactive aggression is that which is planned and predatory and the aggressor is generally calm, confident and resourceful (Bloomquist & Schnell, 2002), (Poulin & Boivin, 2000). Children who are reactively aggressive are more likely to be rejected by their peers than those who are proactively aggressive (Poulin & Boivin, 2000). Appraisal of hostile or confrontational intent in the other is a major predictor of aggressive response (Dodge & Somberg, 1987). As children excluded with behavioural difficulties exhibit overt aggressive behaviours, it is likely that in most cases they will exhibit reactive, rather than proactive, aggression. Hostile bias and deficits in interpretation of the intent of the other have been demonstrated by reactive aggressive boys in response to video recorded clips of possible provocations by peers but not manifest in proactively aggressive or typically developing boys (Poulin & Boivin, 2000).

Adults with personality disorder have been identified as showing emotional bias in attributing emotion to ambiguous faces. In an investigation of attachment style and emotional appraisal, 176 college students rated emotionally neutral faces on 18 bipolar appraisal dimensions. Students also completed questionnaires on attachment style and were screened for features of personality disorder (Meyer, Pilkonis & Beevers, 2004). Both personality and attachment disorders brought about a bias in emotion attribution to the neutral faces: those with anxious or avoidant attachments or personality problems rated faces as 'less friendly and more rejecting' than peers with secure attachment or no personality problems. Borderline personality disorder coincided with anxious/avoidant attachment patterns, corroborating earlier studies (Meyer et al., 2004). A comparison of adult attachment styles and emotional biases compared personality characteristics and possible bias in interpretation of emotion in facial expression using a facial coding task (Magai, Hunziker, Mesias & Culver, 2000). Personalities assessed as fearful-avoidant were more likely than other participants to interpret anger in facial expressions and scored higher on trait anxiety. In contrast dismissive personality types were more likely to see disgust in faces and scored highly on trait anxiety and depression, showing that internal factors can indeed affect emotion appraisal.

Attachment status and personality type are not the only aspects likely to be associated with a bias in emotion attribution. In a comparatively small study, 18 depressed patients and 18

controls were given fixed choice emotional options on presentation of emotionally neutral, happy or sad faces. Depressed patients showed decreased accuracy and longer response times in recognising neutral faces than non-depressed controls (Leppanen, Milders, Bell, Terriere & Hietanen, 2004). That this effect persisted even when patients were in remission from depression led Leppanen et al (2004) to conclude that a depressive disposition can be associated with problems in recognising neutrality in facial expression.

Emotionality and appraisal of emotions in six and seven year-old children, as determined by the degree of expressed emotion, demonstrated evidence of fear attribution bias in children who scored highly on a fear component, as opposed to children scoring highly on a joy component (Schultz, Izard & Bear, 2004). The same study found possible links between emotional experiences and the development of aggression, as measured by teacher reported aggressive behaviour (Schultz et al., 2004). Maladaptive social processing in boys in early childhood assessment has been linked with the later development of conduct problems (Schultz & Shaw, 2003).

With a weight of evidence to suggest bias in appraisal of emotional faces, the issue of whether such bias extends from facial stimuli to body postures will be examined in Study 2 with mainstream school children and in Study 4 with behaviourally challenged children.

There is some evidence of other atypical attribution styles in boys with severe behaviour problems. A 'depressive' appraisal style was identified in 26 British schoolboys attending a special school for behaviourally challenged children. They atypically construed personal, rather than situational, causes for their failure to achieve more often and to a greater extent than typical children of their age (Eslea, 1999). Depressed appraisal style was linked by the researchers to poor academic outcomes and to difficulties in readdressing (correcting) problem behaviours. This possible co-morbidity of depression with behavioural disorders is the reason a screen for depression was included in Study 4 with behaviourally challenged children.

1.4. THE RESEARCH QUESTION OF THIS THESIS

Although emotional competence has been an issue of interest to schools for well over a decade there have been few comparative studies between typical and atypical children. Early contradictory findings on links between emotional understanding and behavioural aspects in childhood (Izard & Read, 1986; Frick et al., 1991; Vinden, 1999) may now have been resolved in that a lack of emotional understanding has been correlated with aggressive behaviour within a school setting and that this is linked to differences in social-cognitive patterns (Dodge et al., 2002). But not enough research has been done into the categorisation of ‘normal’, ‘typical’ or even ‘appropriate’ emotional behaviour, or what is meant by a ‘normal’ emotional repertoire. This study hopes to redress this lack by establishing a measure of emotional functioning based on emotional competence (using self-report) and performance measures with primary aged children.

Any investigation must look at more than just differences in empathy in relation to well-adjusted emotional responses and displays. School-aged children with CD do have an atypical understanding of emotional consequences and expectancies (Arsenio & Fleiss, 1996), but it is not clear how this manifests in the core areas of emotional perception, empathic concern and emotional expression. A clear pattern of cognitive differentiation between typically developing children and those with behavioural problems could enable both an understanding of how such children interpret emotional signals and assist in the formulation of preventative or intervention measures in the primary sector. By asking typical school children about their emotional style and examining their appraisal of others, a better idea can be formed of how children naturally respond to emotional stimuli. Comparing these responses to those of children with intractable behavioural problems will clarify whether severe behavioural problems are connected to a lack of emotional competence and whether this includes a bias in emotional perception. By examining emotional competence and appraisal skills in primary school aged children this thesis aims to put together a measure of emotional functioning which could be used as a differentiator between typically developing and SEBD children of primary age and expand knowledge as to why some children continue to show inappropriate externalising behaviour, are more emotionally ‘volatile’ and are less easy to engage than others; a contribution to the growing research in emotional problems and intervention in childhood (Izard, 2002b). The following section presents the hypotheses for each of the five studies to be found in this thesis.

1.4.1. Hypotheses for the Thesis

The hypotheses for the five studies are presented here along with a brief rationale for each and the statistical analysis to be implemented. The level of statistical significance will be set at 0.05, in accordance with the majority of academic research in the field of psychology and being a balance between the likelihood of type I and type II error (Neuman, 2007). Details of research bases for some specific hypotheses can be found in the relevant study introductions.

1.4.1.1. Hypotheses for Study 1

EMOTIONAL COMPETENCE

- 1) Questionnaires will prove to be reliable and yield factorial solutions which will form the basis of analysis and further research. Rationale: Previous measures demonstrate internal reliability (Bryant, 1982; King & Emmons 1990; Gilbert 2001).
- 2) Emotional expressivity and affective perception will be positively correlated with empathy. Rationale: Empathy is moderated by the awareness of emotion in others and the ability to express emotion appropriately (Findlay, Girardi & Coplan, 2006).
- 3) A positive correlation will be observed between chronological age, empathy and expressivity. Rationale: Previous research indicating developmental aspect to empathy (Denham, Caverly, Schmidt, Blair, DeMuide & Caalal, 2002) and emotional expressivity (Harris & Lipian, 1989). There are no comparative studies using affective perception in childhood.
- 4) Sex differences will be found for empathy and emotional expressivity, with girls scoring higher. Rationale: Previous studies with adult and child samples have found sex differences in gender for empathy (Bryant, 1982; Eisenberg & Mussen, 1978; Feshbach & Roe, 1968) and expressivity (Fuchs & Thelen, 1988; Levenson, Carstensen, Friesen & Ekman, 1991).
- 5) Girls will be more empathic towards other girls than towards boys and boys more empathic towards boys. Rationale: previous research showing sex of stimulus/sex of participant effects resulting in in-group/out-group differences in empathy (Bryant 1982).
- 6) A scale for total Emotional Competence can be extracted using scores from the three questionnaires which can then be factorised to establish underlying skills. Rationale: Major adult tests use key competency areas to comprise a total score for emotional competence (Mayer, Salovey & Caruso, 2000; Bar-On, 2000).
- 7) Overall Emotional Competence will increase with age, irrespective of sex or ethnicity. Rationale: There is a developmental aspect to dealing with emotional information (Strongman, 1996; Izard, 2001).

Statistical Analyses proposed for Study 1

Hypothesis 1.1: Principle components analysis (pca) will be used to extract factors. Split-half reliability and Cronbach's Alpha will be calculated for each of the tests and their subscales as indicated by pca analysis.

Hypotheses 1.2 and 1.3: Two-tailed Pearson product moment coefficient.

Hypothesis 1.4: Multifactorial ANOVA with Tukey HSD post-hoc testing where appropriate or Kruskal-Wallis if homogeneity not confirmed.

Hypothesis 1.5: Independent groups t tests or Mann-Whitney U if homogeneity not assumed.

Hypothesis 1.6: Cronbach's alpha to establish the EC scale; Hierarchical Multiple Regression and Structural Equation Modelling to confirm Affective Skills and Differences.

Hypothesis 1.6: ANOVA to explore EC group and test age. Pearson correlation and partial correlations used to explore relationship between test age and competency scores whilst controlling for other IVs.

1.4.1.2. Hypotheses for Study 2a

EMOTION APPRAISAL IN POSTURES

- 1) Postures will achieve different profiles of affect, regardless of sex and ethnicity of stimulus:
 - a. 'Hands on hips' (arms akimbo) will achieve higher ratings of confrontational affect. Rationale: arms akimbo posture often considered an indication of confrontation, indicating aggression (Pease & Pease, 2003) or impatience, hostility or contempt in adult studies (Givens, 2007; Morris, 2002).
 - b. 'Arms Folded' will achieve higher ratings of negative affect than 'Hands Folded' or 'Hands in Pockets' conditions. Rationale: bowed head and hunch of shoulders suggestive of depressed affect (Mehrabian, 1968); bowed head and folded arms an indication of negative mood (Morris, 2002).
 - c. 'Hands Folded' and 'Hands in Pockets' will be treated as benign presentations by the selection of either neutral or friendly affect from a range of fixed choices. Rationale: postures indicated generally viewed as indicating confidence, vulnerability or slight anxiety (Pease & Pease, 2003; Morris 2002).
- 2) 'Hands on Hips' will achieve more ratings of intentional affect than any other posture, regardless of sex and ethnicity of stimulus or participant. Rationale: Posture suggestive of preparedness for action (Givens, 2007).

- 3) There will be no significant difference in affect appraisals for sex and ethnicity, or interaction between sex or ethnicity of stimulus and that of participants, regardless of posture. Rationale: no previous indication of sex or ethnic differences.

Statistical Analyses for Study 2a

Hypotheses 2.1: Chi-Square comparison will be made of the raw scores for four postures in terms of affect. Wilcoxon Signed Ranks test for non-parametric data will be used to test for significant differences between each posture.

Hypothesis 2.2: Multivariate ANOVA will be used to compare the number of times intentional ratings are made of certain postures by sex, age and ethnicity. Wilcoxon Signed Ranks will be used to examine interaction effects of sex and ethnicity of presentation with sex and ethnicity of participant.

Hypothesis 2.3: Kruskal Wallis test will be performed to examine differences in rating of different postures for sex and ethnicity. Wilcoxon Signed Ranks test for non-parametric data will compare mean scores for all postures in the four separate ethnic and sex combinations.

1.4.1.3. Hypotheses for Study 2b

EMOTION APPRAISAL IN FACES

- 1) Participants will identify an appropriate emotion to each facial emotion presented, regardless of sex of stimulus. Rationale: children's ability to correctly identify facial emotion increases throughout middle childhood and stabilises by age 12 (DeSonneville, Verschoor, Njikiktjen, Op het Veld, Toorenaar & Vranken, 2002).
- 2) Younger participants will give more concrete, situational reasons for emotional change and older participants more sophisticated, mentalistic reasons. Rationale: previous research indicates a developmental process in the ability to mentalise about emotion. (Harris, 1989; Piaget 1965; Oandasan, Ensink, Target & Meredith, 2001).

Statistical Analyses for Study 2b

Hypothesis 3.1: Wilcoxon Signed Ranks will be used to establish whether ability to correctly discern facial emotion is related to age, sex or ethnicity.

Hypothesis 3.2: Chi-Square will be used to determine whether children provide more sophisticated reasons dependent upon age, sex or ethnicity. Multivariate ANOVA will be used to examine interaction effects between sex, age or ethnicity.

1.4.1.4. Hypotheses for Study 3

EMOTIONAL TRANSITION

- 1) Regardless of sex, age, ethnicity or the direction of the interpolation, there will be a consistency in participants' identification of the point of transition from one emotion to another. Rationale: By middle childhood competence in identifying emotion from facial display should be established (Ellis, Lindstrom, Villani, Singh, Best & Winton, 1997; DeSonneville et al., 2002).
- 2) The emergence of 'anger' or 'fear' in an interpolation will be recognized at an earlier point than other emotions and the change from these emotions to other emotions will be noticed at a later point in the interpolation.
 - a. Anger. Rationale: an evolutionary threat-detection mechanism identified by previous studies (Ohman, Lundqvist & Esteves, 2001).
 - b. Fear. Rationale: Previous research with infants, although not examined with primary-aged children (Kotsoni et al., 2001; Leppanen, Vogel-Farley, Moulson & Nelson, 2007).

Statistical Analyses for Study 3

Hypothesis 4.1: Multivariate ANOVA will be used to establish whether there are any effects in consistency for sex, age or ethnicity. Kruskal-Wallis will be used if homogeneity not confirmed.

Hypothesis 4.2: Wilcoxon Signed Ranks will be used to establish whether anger and fear are more dominant in the perception than other emotions.

1.4.1.5. Hypotheses for Study 4 (Children with Severe Behavioural Disturbance)

EMOTIONAL COMPETENCE

- 1) Children who are behaviourally challenged (BC) will score lower for affective and cognitive empathy than typically developing participants. Rationale: previous research showing deficits in situational and dispositional empathy in children with behavioural problems (Hastings, Zahn-Waxler, Robinson, Usher & Bridges, 2000; de Wied, Goudena & Matthys, 2005).
- 2) BC children will score higher than typically developing children in some emotional competencies:
 - a. The expression of gregarious emotion. Rationale: children with behavioural problems show less social restraint and may therefore be indiscriminately more emotional (Taylor & Harris, 1984; Adlam-Hill & Harris, 1988).

- b. Items relating to the expression of anger (expressivity scale). Rationale: development of emotion control delayed in children with behavioural disorders (Taylor & Harris, 1984; Adlam-Hill & Harris, 1988).
- 3) Total Emotional Competence (EC) scores may be associated with the reading or chronological age of participants. Rationale: developmental basis to handling of emotion-based information (Strongman, 1996; Izard, 2001). Conflicting evidence that EC is linked to academic literacy (Barchard 2003) but also that it is not (Gil-Orte Márquez, Palomera Martín & Brackett, 2006).
- 4) Scores for EC or key competencies (KC) may differ from those of typically developing children:
 - a. EC scores may be lower, if correlated with depression or anxiety, Rationale: Depression linked to poor self-worth and perceived performance (Roberts, Gotlib & Kassel, 1996); anxiety linked to negative self-evaluation (Naveh-Benjamin, McKeachie, Lin & Holinger, 1981); co-morbidity of depression and conduct disorder (Weiner, 1996).
 - b. Scores may be higher if not correlated positively with depression or anxiety. Rationale: children with behavioural problems consider themselves highly interpersonally competent (Pardini, Barry, Barth, Lochman & Wells, 2006).

EMOTION APPRAISAL IN POSTURES AND FACES

- 5) Consistent with findings that BC children exhibit hostile bias in interpreting emotional information (Poulin & Boivin, 2000; Nasby, Hayden & DePaulo, 1980; Schultz et al., 2000) the following hypotheses can be advanced:
 - a. BC children will bestow more appraisals of negative affect than typically developing children to the benign postures 'hands in pockets' and 'hands folded'. Rationale: children with behavioural problems attribute hostile intent to peer representations (Dodge & Somberg, 1987).
 - b. BC children will attribute an action tendency to postures more often than typically developing peers. Rationale: Children with severe behavioural problems are likely to view others as having an action tendency towards themselves (de Castro et al., 2005).
- 6) BC children may be less accurate in identification of static facial emotion than typically developing peers. Rationale: children with poor social skills can show delay in stable recognition of facial emotion, especially sadness, anger and fear (Wocadlo & Rieger, 2006).
- 7) BC children will give more concrete and less mentalising reasons for change in emotion than typically developing peers. Rationale: children with clinical problems show delay in the use of mental state terms (Oandasan et al, 2001).

EMOTIONAL TRANSITION

- 8) Sensitivity of BC children to anger and fear in interpolations of morphed facial display may vary from that of typically developing peers:
 - a. Greater sensitivity to anger demonstrated by choosing an earlier point of transition when identifying the emergence of anger from a neutral expression. Rationale: increased sensitivity to perceived anger in peers in previous research (Sharp, 2001).
 - b. Less sensitivity to fear demonstrated by no heightened sensitivity to fear whilst viewing an interpolation. Rationale: fear recognition deficit associated with psychopathic personality characteristics (Montagne, van Honk, Kessels, Frigerio, Burt & van Zandvoort, 2005).
 - c. If the child has high Trait Anxiety, anger may be identified at an earlier point in an interpolation. Rationale: High trait anxiety facilitates response times in identification of anger in faces (Hadwin, Donnelly, French, Richards, Watts & Daley, 2003).

OTHER ISSUES

- 9) The behaviour of BC children over the period of testing will be uncorrelated to their scores for emotional competence or emotional appraisal of postures. (Null hypothesis). Rationale: not enough information from previous studies to make assumptions.

Statistical Analyses for Study 4

Hypothesis 5.1 and 5.2: Multifactorial ANOVA or Kruskal-Wallis if homogeneity not confirmed.

Hypothesis 5.3: Two-tailed Spearman rho correlation coefficient.

Hypothesis 5.4a and b: Two-tailed Pearson product moment correlation coefficient.

Hypothesis 5.5a: Wilcoxon Signed Ranks to identify differences between different postures; Mann-Whitney U for BC and TD comparison.

Hypothesis 5.5b: Kruskal-Wallis test to determine differences in intentionality appraisals.

Hypothesis 5.6, 5.7 and 5.8: Wilcoxon Signed Ranks to compare BC and TD appropriate choice of emotions and reasons for change.

Hypothesis 5.9: Pearson Product Moment correlation coefficient to compare number of tokens with scores for emotional competencies. Spearman's rho to compare number of tokens with rank scores for appraisal of affect in postures.

1.5. ORGANISATION OF THESIS

This thesis examines emotional competence and emotion appraisal in typically developing children aged seven to 11 years in middle childhood. It does so by firstly examining a population of mainstream school-children in the primary sector and secondly by working with children of the same age range who have been excluded from normal schooling because of severe behavioural problems. The thesis therefore contains five investigations in total: Study 1) Emotional competence in mainstream schoolchildren, Study 2a) Emotion appraisal (using body postures) in mainstream schoolchildren, Study 2b) Ascribing reasons for emotional change in faces in mainstream schoolchildren, Study 3) Appraisal of transition in facial expression (using morphed interpolations) in mainstream schoolchildren and Study 4) Emotional competence and appraisal in children with severe SEBD. Each study is prefaced by an introduction to major themes, issues and expectations, all of which will be raised in the discussion in addition to information presented in this introduction.

Chapter 2 covers general methodology including choice of sample and related issues. The thesis then focuses in chapters 3 to 7 on the four mainstream investigations in turn using a similar format: a brief introduction to the specific area of investigation, methodology, predictions, results and a discussion of outcomes. Chapter 8 details the fourth investigation and the revision and adaptation of test materials subsequent to the testing of the mainstream sample. Chapter 9 is presents a full discussion of each of the four studies and ends with a conclusion concerning the achievements of this thesis.

CHAPTER 2: METHODOLOGICAL ISSUES

2.1. CHOICE OF SAMPLE

There were several reasons for deciding to use a primary-aged population for this project. During middle childhood (seven to 11 years; the period of primary education) many significant changes occur in social interaction and cognitive development. Capacity for abstract thinking, ability to self-manage and deal with complex relationships, moral and empathic reasoning are all very different from both infancy and adolescence (Eisenberg et al., 1987). Middle childhood years see a significant increase in the child's ability to socialise outside the family structure, to form lasting and meaningful friendships and to interact skilfully with others. New academic skills and a motivation for learning sets middle childhood apart from infancy and early childhood. The child's main social environment has begun to shift from the home and is centred more on peer relationships. Children have advanced in their capacity for interpersonal understanding and can contemplate causal reasoning for their own and others' behaviour. They are more able to understand that multiple perspectives can be found in an emotive situation.

Behavioural problems are also most likely to have become evident by middle childhood. Early maladaptive patterns of withdrawal or aggression become established (Moskowitz, Schwartzman & Ledingham, 1985). Cognitive and behavioural changes that take place in this period have a strong effect on future trajectories; patterns established often outweigh the effects of cognitive development in the early years (<five) and are more likely to be followed into adulthood (Feinstein & Bynner, 2004). Successful intervention during this period can lead to a significant change in predicted outcomes for children with behavioural disturbance (Aber, Brown & Jones, 2003). Primary aged children also respond better than adolescents to attempts of educators and others to negotiate the way they handle difficult situations (Kliewer, Fearnow & Miller, 1996). Any differences found in understanding for children within this age group will be of help in formulating possible interventions.

Primary aged children are used to working quietly and thoughtfully in a classroom environment and their attention span is better than that of younger, pre-junior, children. This gives an opportunity for a whole class to be tested at one time, where teacher co-operation could be obtained, giving a high consistency in administration. A reading age of seven years plus and comparable comprehension age was thought to be necessary for children to understand some of the questions asked and the concepts of intrapersonal and interpersonal affect.

This project uses a sample of children from schools in and around the London area. There are increasing numbers of ethnic cultural groups amongst many city primary schools. Language differences and cultural backgrounds may affect the propriety of emotional displays, either suppressing or increasing emotional expressiveness. Cross-cultural misunderstandings have been blamed for unrest and racial incidents. Differences in etiquette as well as standards and norms may alter responses to emotional signals in others (Lewis, 2005). It would be valuable to look at possible differences in emotional perception, empathic concern and expression amongst school children from different cultures.

2.2. CLASSIFICATION OF CHILDREN

As part of the documentation and analysis of Study 1 and subsequent studies, differentiation had to be made between the general population of mainstream schoolchildren and children designated as having either special needs problems, overt behavioural problems and (in Study 4) children who had been excluded from school for severe behavioural problems. Children with special needs problems are given labels by the Department for Education and Skills (DfES) which allow an immediate classification which in turn entitles them to assistance from the school and other related authorities. Any child who is identified as having difficulties which have an impact on their education will be classified as Special Educational Needs.

However, some children will attract a further categorical label, dependent upon the nature of their difficulties. Of particular interest to this study are pupils who have been identified and assessed as having specific or general emotional and behavioural problems. These children are described as ‘emotional behavioural difficulties’ (EBD). This categorisation has been expanded by some local education authorities to include behavioural difficulties in social involvement generally, giving rise to the addition of ‘social’ in the descriptor (Cooper, 2005) and a label of ‘social, emotional and behavioural difficulties’ (SEBD) or ‘behavioural, emotional and social difficulties’ (BESD) which is also used (Evans, Harden, Thomas & Benefield, 2003). The former label, SEBD, is preferred by the DSM-IV (1994)] and will be used in this study. There is no absolute definition of EBD as it varies in manifestation from pupil to pupil. However, it represents a continuum of behaviour which ranges from that which is challenging but with a normal range (although unacceptable) through to that which may be a precursor of serious mental illness. What all children with SEBD attract is additional time and attention of the school in order to provide them with the same level of education as their typically developing peers.

An important decision for this thesis was how to refer to the bulk of mainstream children who are non-problematic and are not experiencing any overt difficulties. These children’s responses would be used to comprise the baseline, or ‘normal sample’. It was deemed possibly offensive to refer to such children as ‘normal’ (implying that other children were ‘abnormal’) and too depersonalising to refer to them as a ‘control sample’. It was decided by the author to use the label ‘Typically Developing (TD)’, which has been widely used in developmental research over the last few years, in particular with research into aspects of emotional development, such as a recent study on emotion recognition in Down’s Syndrome (Williams, Wishart, Pitcairn & Willis, 2005), autism (Losh & Capps, 2006), and cognitive differences in atypical development, such as autism (Peppe, McCann, Gibbon & Rutherford, 2007; Pellicano, 2007) and ADHD

(Lorch, Milich, Astrin & Berthiaume, 2006). Here the authors refer to the baseline, or control sample of non-impaired children as ‘typically developing’. This has been abbreviated for convenience during this study as ‘TD’.

The author also decided to use the definition ‘SEN’ to refer to children who were suffering educational impairment on the special needs register, but excluding children referred for social, emotional and behavioural difficulties, who were differentiated within the mainstream school system with the label ‘EBD’ or ‘SEBD’. Study 4 used as a sample children who had been excluded from school for overt and consistent behavioural difficulties which had proved too challenging to be handled within mainstream schooling. It was important to choose a label for these children which differentiated them from the school SEBD population. Accordingly, the label of ‘behaviourally challenged’ was used (referred to as ‘BC’ for convenience). The use of ‘behaviourally challenged’ is actually widespread⁸ and has been used educationally both in the UK and abroad probably as a politically correct reference to children who have been targeted as specifically causing problems by anti-social behaviour. As such it has become synonymous with behavioural difficulties in general within the school system, although it is not used as an official descriptor educationally: here EBD or equivalent is still the mainstream accepted delineator of school behavioural problems.

The descriptor ‘behaviourally challenged’ is also beginning to appear in academic articles concerning children with problem behaviour and therapeutic processes: families with children with behavioural issues (Breunlin, Cimmarusti, Hetherington & Kinsman, 2006), an interactive ‘walking’ therapy for young people (Doucette, 2004), an investigation of school-based violence and therapeutic processes (Breunlin et al., 2006) and a dissertation study on the assessment of two wilderness therapy programs with behaviourally challenged youngsters (Hagan, 2003).

The label ‘BC’ therefore was chosen by the author to represent the children in Study 4 who have been isolated from mainstream teaching because of behavioural problems which have become the defining feature of their special needs status. Each of the sample groups will be designated as belonging to a ‘status’ group. These are defined in Table 3 below.

⁸ The label has been applied not only to children but to animals with references to ‘behaviourally challenged’ horses in a discussion on shoeing and ‘behaviourally challenged’ dogs in a training manual.

Label	Descriptor	Detail
TD	Typically developing	Children in mainstream schooling with no special needs classification, notable disability or educational issue, whose educational achievement is typical of their age and sex. These children will comprise a normative, or control sample, against which other children will be compared.
SEN	Special Educational Needs	Children in mainstream schooling who for whatever reason are failing to achieve educationally as would be expected for their age and sex. This reason can include physical impairment or some form of educational delay or disadvantage (such as dyslexia). The child is not regarded as having any particular behavioural problems.
SEBD	Social, Emotional and Behavioural Difficulties	Children in mainstream schooling who are on the special needs register for reason of non-transient problems with behaviour and social interaction which have required allocating extra resources within the mainstream school system or beyond.
BC	Behaviourally Challenged	Children in special schooling whose major issue is one of extreme behaviour brought about by emotional and social difficulties which have required them to be removed from normal mainstream schooling and educated at a separate establishment. These children will probably also be performing academically below the level expected of their age and sex, but mainly because of their behavioural difficulties.

Table 3: Special Needs labels used during this research

2.3. PRIMARY PROVISION FOR CHILDREN WITH SPECIAL NEEDS

The transition from infant to junior education is not an easy one - there are greater demands for concentration and the child is expected to assimilate a new regime of behaviour and work-based competencies in a relatively short space of time. Many emotionally vulnerable children find this a difficult task and fall behind their competent peers. Emotional problems can manifest in very different ways. The quiet, introverted child who fails to complete any project they start and cannot concentrate for very long and the loud, angry child who refuses to be organised both need to have their emotional issues understood and dealt with or they will threaten to impede their progress and their acceptance by those managing them.

Many children with purely educational needs (for instance dyslexia or dyspraxia) will obtain early assessments if possible. This is a priority under the Code of Practice (DfES, 2001) and provision within the school using the “Early Years Action, “Early Years Action Plus, “School Action” and “School Action Plus” systems of differential management. Hopefully, their needs can be accommodated within the curriculum framework and without the need for the involvement of outside agencies, although this is not always possible in the case of children with severe learning difficulties. For details of classification and categorisation of children with special needs and a description of the process involved, please see the supplement “Classification and Categorisation of Children with Special Needs” in Appendix 1.3.

The school and the school authority will always work towards inclusion of the pupil with special needs within the classroom if this is at all possible. Although there is some evidence that pupils with special learning difficulties may experience a lower level of social acceptability than their peers (children with speech and language impairments (Gertner, Rice & Hadley, 1994); pupils with moderate learning difficulties (Frederickson & Furnham, 2004) on the whole they cause little problem within the classroom situation. For children who exhibit overt behavioural problems, the progress of their education is less clear cut. Indeed with some children there appears to be little discernable difficulty in absorbing educational principles per se. However, a high level of distractibility and resistance to being helped render these children incapable of progressing educationally at the speed of their peers. Emotional problems interfere with learning and cause conflict within the learning environment. With a tendency to associate with anti-social peers, young people exhibiting aggressive externalising behaviour have been

shown to be at severe risk of failing academically (Cairns & Cairns, 1991). Given a one-to-one situational help these children often appear equable and willing to learn⁹. In a classroom situation they are barely tolerated by staff and take every opportunity to disrupt the class either by aggression or inappropriate ‘fooling’¹⁰.

A child who has a learning difficulty or a disability (including a behavioural problem) which is holding them back at school will be categorised by their school and Local Education Authority (LEA) as having SEN. A general label of SEN indicates that a student has a significantly greater difficulty in learning than the majority of pupils of their age or a disability which means that they cannot make full use of the general educational facilities provided for their age. Children and young people between the ages of four and 19 years are entitled to receive full-time education appropriate to their needs and therefore provision must be made both by the school and the LEA to educate the SEN child in the manner most appropriate to their needs. A description of the precepts and process of the school special needs system can be found in Appendix 1.3.

Although the education authority will work towards inclusive education for a pupil if at all possible, this education may be in a special school, mainstream school or somewhere else. A child may even be educated at home as long as the local education authority is satisfied this meets the child's individual needs. The needs of the child may be identified by parent, school, social worker or doctor and are subject to regular and specific reviews.

2.3.1. Defining Behavioural Problems

In the educational environment extreme behavioural problems have been categorised in two ways: as ODD or the more serious CD. According to the DSM-IV (1994), a child who meets the criteria for a diagnosis of CD will exhibit serious behaviour problems with aggressive or non-aggressive actions against people, animals or property that may be characterised as belligerent, destructive, threatening, physically cruel, deceitful, disobedient, or dishonest. This may include stealing, intentional injury, and forced sexual activity. The DSM-IV requires that the behaviour disorder consists of a pattern of severe, repetitive acting-out (externalising) behaviour and is not simply an isolated or occasional incident. Children with CD are most likely to be excluded from normal schooling.

⁹ This was the experience of the author during three years of working with Primary aged pupils in mainstream education as special needs assistant with children withdrawn for SEN and has been confirmed by talking to Head of Training at the school for emotionally disturbed children March 2005.

¹⁰ Reports of class teachers during author's work as SEN assistant, 1994-1997.

In contrast, the DSM-IV categorises ODD as a pattern of problem behaviours that do not meet the criteria for CD but involve a pattern of defiant, angry, antagonistic, hostile, irritable, or vindictive behaviour. ODD could be diagnosed if the child exhibited a pattern of negativistic, hostile, and defiant behaviour lasting for at least six months, during which four (or more) of the following are present:

- Often loses temper.
- Often argues with adults.
- Often actively defies or refuses to comply with adults' requests or rules.
- Often deliberately annoys people.
- Often blames others for his or her mistakes or misbehaviour.
- Is often touchy or easily annoyed by others.
- Is often angry and resentful.
- Is often spiteful or vindictive.

(DSM-IV, 1994)

The latter disorder (ODD) is more commonly observed and diagnosed in contemporary primary schools. ODD could also be summarised as an ongoing pattern of hostile behaviour towards all authority figures that is not accounted for by the child's developmental stage. Reading through the list of DSM-IV criteria for ODD one could be forgiven for thinking that many of the criteria items are frequently found in teenage behaviour; indeed a certain amount of oppositional-style behaviour could be expected, and is frequently seen, in puberty and adolescence. In addition to the oppositional behaviours a child with ODD would be expected to fall below his or her peers in terms of academic achievement, indicating impairment to general functioning. At times this produces a global delay in all areas of learning throughout the curriculum. The behaviour, although persistent and entrenched, would not be expected to include major antisocial violations such as are found in CD.

Although inappropriate behaviour such as described in ODD (above) would not be described as extreme, it can have serious repercussions on classroom functioning as well as for individual outcomes. For whatever reason children who display atypical emotional behaviours (confrontational, maladaptive) have a poorer academic outcome than their well-adjusted peers, according to some research (Frick et al., 1991). A child who regularly and persistently disrupts the learning of others by defiant and negative behaviours will not only demand more of the school's time and resources but will fail to integrate into the group and be in danger of falling well below the expected curriculum standard for their age; in part due to being isolated or expelled from the classroom at regular intervals. By the time they are referred to special schools such children can be well below the normal reading age. It is not uncommon for 10 to 11 year-old children in exclusion schools in the UK to hold statutory reading ages of seven

years or under. Although this is not always a good reflection of their comprehension skills it is a huge disadvantage to their continued schooling¹¹.

2.3.2. Encouraging Socially Desirable Behaviour Within the School System

Many schools are now addressing social skills and empathy as part of the curriculum. As part of the National Curriculum all secondary aged children are now obliged to attend Personal, Social and Health Education (PSHE) classes which include personal and social skills: feelings and emotions, empathy, self-image and assertiveness are all areas to be targeted. Some primary schools are including initiatives to promote empathy within the school as part of a wider local authority drive to improve children's social skills and learning and reduce bullying.

The emphasis on empathy reflects a popular dual rationale: firstly, that empathy and moral awareness are developmental attributes that can be improved by a process of enhanced awareness and tuition. Secondly empathy and morality are often viewed as being synonymous by writers and developers of social and moral development programmes (Upright, 2002) and in methods of teaching; for example teaching morality by relating it to empathic awareness (Johansson, 2002). This is largely because the two are positively correlated and associated (Hughes & Dunn, 2000); the rationale being that enhancing empathic awareness and knowledge will promote moral and caring behaviours, including moral empathy. Whether of course this is the case in practice is quite another matter. The emphasis on empathy, rather than moral development, as was the case 20 years ago when Kohlberg was fashionable in school personal education classes, is at least in part due to the rise of a new focus in interpersonal functioning; the concept of emotional competence.

Many if not most materials used in the classroom to assess or promote the development of emotional competence have been either manufactured 'in-house' or loosely designed around adult theory. This aim of this research has been not only to place the investigating of components of emotional competence firmly within the research domain, but to provide research based measures of a child's emotional standpoint for schools to use in assessing emotional vulnerability and problem areas. It has aimed along the way to answer some of the remaining questions regarding individual differences and the place emotional competence has in behaviour and integration within the school environment.

¹¹ In the school for Behaviourally Challenged primary aged children where the final study of this thesis took place, this was commonly the case, in combination with a low spelling and numeracy age.

2.4. CHOICE OF TESTS

It was decided to use two types of test for this research: self-appraisal measures employing self-report questionnaires and other-appraisal measures employing stimulus-response tests.

2.4.1. Emotional Competence

The reasons for examining aspects of emotional competence and Key Competencies using self-report were several:

1. Most adult studies of emotional competence use self-report measures to determine emotional functioning, as do psychometric personality tests (Mayer et al., 2000).
2. A recent measure to examine emotional competence in children (BarOn EQi-Youth Version) used self-report as the means of testing (Bar-On, 2000).
3. Child studies on empathy to date have used mainly self-report questionnaires, which would enable the designing of a series of questionnaires around a similar style for consistency.
4. Self-report measures can be administered easily by means of standardised administration instructions. Measures that employ interaction with children require specific training and are very time consuming.
5. Self-report enables an investigation of how the participant believes they are functioning, which gives an insight into what they believe is acceptable behaviour and responses, and can be compared to choices they actually make. This means that comparison can be made.
6. Investigator bias can be a problem with direct interactive investigation. This would make it harder to gain valid results and standardise the tests.
7. Quantitative, rather than qualitative, research methodology allows a direct comparison between a large control sample and a sample of children with problems. This enables analysis of how large numbers of children responded to specific stimuli.

It is acknowledged that there are disadvantages in the self-report method. Firstly, self-report inventories often contain questions where the participant is able to interpret the underlying intention of the questioner and respond in the way they think the investigator would like. Secondly, self-report measures are susceptible to a 'social desirability effect' where the participant might state what they wish were true, rather than making genuine responses or expressing genuine opinions. Thirdly, questions on self-report questionnaires may be interpreted variably by participants. For this reason it is important to make statements or questions as unambiguous as possible. Finally, self-report at best will give an indication of the functioning of a participant in a certain area, but it not as precise as a performance-related measure.

However, when considering the form of measure for this study, the advantages outweighed the disadvantages of using a self-report measure. Levels of perceived emotional competence were to be used as a comparative measure in conjunction with two performance-related measures of emotional competence. As the primary objective of Study 1 was to examine what children thought of their skills in certain areas, the author was not overly concerned about the issue of social desirability.

After reviewing tests available it was decided to prepare three questionnaires relating to the three Key Competencies (see Theoretical Model): perception, empathy and expressivity. These would be based around the format of a validated questionnaire, designed for children of five to 12 years: the Index of Empathy for Children and Adolescents (IECA) by Bryant (1982). This measure was designed as a child and adolescent version of the popular Mehrabian and Epstein (1972) model, which focussed on empathy largely as a vicarious response to the perceived emotional situation and state of the other, whilst incorporating some of the Feshbach and Roe approach. Feshbach & Roe (1968) saw empathy as a combination of ‘cognitive social insight’ (empathic understanding) and affective response. Initial research using the IECA did not attempt to tease apart these aspects of empathy but rather to merge them, something this current study has sought to address.

2.4.2. Emotion Appraisal and Appraisal of Transition of Emotion

In order to ascertain whether perceived emotional competence was reflected in the way a child responded to others, three studies examining emotional appraisal were proposed for this thesis.

- 1) Study 2a: Appraisal of the emotional state and intent of the other in a whole body presentation; appraising body posture and non-verbal indicators in addition to facial emotion.
- 2) Study 2b: Appraisal of basic facial emotion and in particular the ability to provide mental-state terms (mentalising, or reflectivity) in giving reasons for an emotional change as signified by a change in facial expression.
- 3) Study 3: The ability to appraise that emotion has changed in facial expression by using an interpolation of morphed images of facial emotion designed to simulate movement.

Because of the possibility in the first two of these investigations that socially desirable answers may be presented if the child knew what the object of the task were, it was considered important that the child would respond to the measure without being aware that his or her own internal processes were under examination. Ideally, therefore, the child would not employ cognitive rational arguments when being asked to assess others but would respond intuitively (Izard, 1993). Socially acceptable answers as a response to emotive stimuli can be seen as a danger in scenario-based investigations of emotion appraisal, an aspect which is fully discussed in chapter

4.1 in the introduction to Study 2. It was therefore decided that for Studies 2a and 2b children would respond to pictorial, rather than written, prompts when asked to give their appraisal emotion in others. Details of the development of these measures can be found in the methodology for Study 2a and 2b (Chapters 4).

For Study 3, an entirely visual interactive computerised measure targeted the child's ability to make decisions about emotive media using photographs of emotional faces which were morphed from one emotion to another. Details of the development of this measure can be found in the methodology for Study 3 (Chapter 7.2).

CHAPTER 3: STUDY 1: SELF-REPORT OF EMOTIONAL COMPETENCE

3.1 INTRODUCTION

The first study aimed to investigate perceived Emotional Competence by means of self-report questionnaires in Key Competencies (see theoretical model in Chapter 1) delivered to a population of primary-aged children in normal schooling. Within this sample it was intended to isolate any differences in perceived competence between normally functioning children and children who had either special educational needs or were showing behavioural problems. Hypotheses for this study can be found in Chapter 1.4.1.1. Supporting research is detailed below.

3.1.1. Perception (Affective Perception Test for Children: APT-C)

Affective (emotional) perception has been found to be the best predictor of emotional competence in adult studies (Gilbert, 2001). It was therefore expected that there would be some variation in the confidence of children in their ability to understand their own emotional states and to identify or predict emotional content (e.g. happiness or sadness) in others. Children who are struggling academically often show a general lack of confidence in their abilities; it was therefore possible that children with special educational needs would think themselves as less emotionally perceptive than their successful peers. However there is little research on affective perception in childhood, which made predictions for this measure difficult.

It was anticipated that typically developing children would have a better capacity for emotional perception than their SEBD peers, bearing in mind that children with behavioural issues are by definition more confrontational and less integrated socially than their peers. Whether SEBD children would think themselves competent in emotional issues was an important part of this study. Behavioural difficulties have been linked to low self-esteem in a previous study (Leary, Schreindorfer & Haupt, 1995). However, regardless of actual ability it may be that such children believe they are at least as competent as others in understanding their own and other's emotional standpoints. It was therefore not possible to predict an outcome as regards status for scores on affect perception.

Gilbert (2001) found a significant sex effect for perception, with women scoring significantly higher than men. However, there has been no indication of sex differences in the ability to perceive emotion in childhood, so this effect was not expected in the current study. It was considered that there may be some cultural differences, and that these might manifest because of different cultural patterns and expectations of emotional propriety.

3.1.2. Empathy (Index of Empathy for Children and Adolescents: IECA)

Empathic concern was examined in two areas, affective empathy (strength of feeling) and cognitive empathy (attitude and understanding). Empathy has been thought to play a critical role in helping individuals desist from aggressive behaviour and deficits in empathy have been seen in children with externalising problems (Hastings, Zahn-Waxler, Robinson, Usher & Bridges, 2000). It was therefore anticipated that typically developing children would score higher for empathy than their SEBD peers as empathy may modulate aggressive behaviour and encourage helping behaviours. No specific predictions were made as to the comparative empathy scores for the SEN children as no studies in this area had been identified. However, some developmental differences could be expected, with younger children showing less cognitive empathy in total than older children in association with the developmental aspect to display rules in society.

It was expected that girls would be more empathic than boys. This pattern has been consistently noted (Feshbach & Roe, 1968; Bryant, 1982) and may relate to the socialisation of girls to be more emotional and nurturing from an early age. Whereas sensitive mothering has been related to empathy skills in adolescent boys, a ceiling effect seems to apply to girls who are overwhelmingly more empathic than boys (Eisenberg & Mussen, 1978). Sex differences have been found where boys considered the plight of other boys (in-group) or girls (out-group). Significant in-group empathy preferences were seen (Bryant, 1982) which children more empathic towards their own sex. It was expected that this finding would be repeated, as it is generally accepted that boys admit to showing less empathic responses than girls.

However, as previous studies have not differentiated between affective and cognitive empathy it was considered that sex differences would be seen only in affective empathy, which could relate to an in-group/out-group variation in scores. Sex stereotypes may operate more forcefully with different ethnic groups: boys from a Turkish or Mediterranean background, for example, may

regard comforting behaviour as inappropriate with other males, reflecting their cultural perspective of a male role model. Any ethnic differences would therefore be of interest.

3.1.3. Expression (Emotional Expressivity Questionnaire for Children: EEO-C)

Emotional expression in this context is a measure of how comfortable the child feels with their own emotional experience and where they feel appropriate boundaries lie in showing their emotion to others. Both valences were investigated: 1) positive emotions, such as happiness, love, excitement and 2) negative emotions such as sadness and anger.

It was expected that SEBD children (because of their tendency to show externalising and disruptive behaviours) would be more comfortable with expressing negative emotion and would score higher for items relating to anger. It was also thought possible that there would be a general preference for expressiveness amongst the SEBD children, in line with the concept that social impairment may be linked with less restraint. It was also predicted that SEBD children would show less of a tendency to conceal antisocial feelings than their TD peers, in line with previous findings. Developmental progression in emotion control has been found to be delayed in children with behavioural disorders (Taylor & Harris, 1984; Adlam-Hill & Harris, 1988).

There is some evidence that children's expressivity changes with age (Harris and Lipian, 1989) with older children better at handling negative emotion. By the age of 10 children are moderating their emotional displays in order to be more socially acceptable and that this may happen earlier for boys than for girls (Banerjee, 2000). Sex differences in expressed emotion (with girls scoring higher overall than boys) have been found in both adult and child studies (Fuchs & Thelen, 1988; Levenson, Carstensen, Friesen & Ekman, 1991).

3.1.4. Overall Emotional Competence

It was expected that there would be age differences in emotional competence. This would be due to developmental differences, which have been found in the processing of emotional information in earlier child studies (Strongman 1996, Izard, 2001). Adults outperform adolescents in emotional competence on the MEIS (Mayer et al., 2000). It was expected that some difference may be found between older and younger children, although this may only be evident between extremes of the sample; between seven and eleven years and not between other

ages between. In addition, differences between typically developing and special needs categories were examined.

3.1.5. Overall Aims of Study 1

This study aimed to identify areas of difference and similarity in children's reports of their own emotional perception, empathic feelings and emotional expressiveness. It also established a platform from which further understanding of the emotional world of children could be examined in giving support to a theoretical model of emotional competence proposed by the author. This included the identification of the Affective Skills and Differences which lead to the development of Key Competencies. It provides a starting point for helping children with emotional and behavioural problems to understand themselves and others better and enable interventions to be more specifically directed, whilst providing opportunity for further research into links between Core Aspects and the Affective Skills and Differences.

3.2. METHOD

3.2.1. Design and Preparation of Materials

3.2.1.1. Test Media: Questionnaires

The questionnaire around which two other questionnaires were to be designed was initially devised and administered by Bryant (1982) having been developed directly from Mehrabian's and Epstein's adult Emotional Empathy Questionnaire (Mehrabian & Epstein, 1972). It has been occasionally employed since as a measure of empathic concern in child studies. It is an extremely wide scale in that it was designed to be appropriate for children as young as five to 11 years – albeit with an adaptation for younger children to use a 'yes/no' answer format instead of the full (nine point) Likert response scale. Although it was considered that some of the questions would be difficult for any child under age seven or eight to comprehend, it was decided that as a validated test which was constructed 20 years ago it should be kept as near to the original as possible for the TD administration, in order to see how children coped with the content and format. As children in Study 1 would be at least seven years of age the full nine-point scale was initially retained. This questionnaire formed a basis around which were structured the other two tests.

The Bryant scale (Bryant, 1982) used 22 items (adapted from Mehrabian and Epstein's 33 items) in the form of statements that required a response varying from "Very strongly agree" to "Very strongly disagree". Some slight adjustments were made for the English population; 'cookies' was replaced with 'crisps', which was deemed a more likely playground snack for British children that could easily be shared. Otherwise the scale was reproduced very much as the original but with a friendly interface with pictures and a test example ("I like eating chocolate") to familiarise the child with the style of decision making they would encounter and how to select a response. Choices were scored from one to nine where nine was a high score and indicated a high degree of reported empathy. Bryant did not factorise her questionnaire, but this current study is interested in two theoretically separable areas of empathy: cognitive and affective. Items which require a participant to consider aspects of emotional behaviour, for example, "people who cry when they are happy are silly", are measuring the understanding of appropriate and acceptable attitudes towards emotion in others. In terms of this study, this is the measurement of the child's knowledge of empathy: cognitive empathy. Items which ask the participant how much they would feel in response to an emotive situation are measuring the

ability to feel empathy for another: affective empathy. It is an important distinction in the understanding of empathy (Shechtman, 2002).

Using the Bryant (1982) test as a model, two further tests were adapted from adult scales. Two tests recently used by Gilbert (2001) including a revision of an early scale were chosen. The first was the Emotional Expressiveness Questionnaire (EEQ) devised by King and Emmons (1990) comprising 16 items and a seven point Likert scale. A population of 299 undergraduate students was used to standardise the scale. The total scale was significantly correlated with peer ratings of participant's expressiveness. Three factors were obtained: Expression of Positive Emotion (seven items), Expression of Intimacy (five items), and Expression of Negative Emotion (4 items). However, some items loaded quite poorly on the factors and there has been no validity evidence produced leading to some researchers ignoring factorisation and taking the EEQ simply as one single scale (Kring, Smith & Neale, 1994). Gilbert (2001) did not factorise the EEQ.

Each item on the King (1990) scale was considered for appropriateness for children aged seven to 11 and adapted accordingly (see Appendix 1.7 for King's questionnaire). Although few revisions were deemed necessary, those that were are documented in Table 4 overleaf. New items based upon the areas of expression the original questionnaire targeted were proposed by the author and adjusted or adopted accordingly. Items comprised of statements about positive emotion (for example "I touch friends when we are talking") and negative items (for example "I cry at sad films"). The use of negative items was to enable questions about anger and sadness to appear as 'positively' phrased to allow the child the option of choosing these without concluding that the answer would be 'wrong' - for example "If someone shows me up I get angry and shout". In keeping with the Empathy questionnaire, a high score meant a high level of emotional expressivity. This questionnaire was labelled 'Emotional Expressivity Questionnaire for Children' (EEQ-C).

APT was a 14 item scale, the APT-C 19 items – Gilbert used a seven-point Likert scale whereas the APT-C used a five-point Likert scale with labelled options which varied depending upon the wording of the statement. These ranged from 'strongly agree' to 'strongly disagree', from "Most of the Time" through "Often", "Sometimes" and "Not Often" to "Almost Never", or from "Really true" through "Often true", "Not Sure" and "Not really true" to "Untrue". In each case a high score equalled high emotional perception.

Items on EEQ	Items on proposed scale	Rationale for Change
I often* tell people I love them	I tell people I love them	n/a
I show that I like someone by hugging or touching that person	I show that I like someone by hugging them	Touching is not necessarily related to liking
I often* touch friends during conversations	I touch friends when we are talking	Appropriate vocabulary
Watching television or reading a book can make me laugh out loud	I cry at sad films	Being able to cry is also an aspect of expressivity, not covered on scale
I laugh a lot	I laugh at lots of things	More specific
When I am angry people around me usually* know	When I am angry my friends can tell	More personal
People can tell from my facial expressions how I am feeling	People can tell from my face what I'm feeling	Appropriate vocabulary
Whenever people do nice things for me, I feel "put on the spot" and have trouble expressing my gratitude	I don't know what to do when someone does something nice for me	Difficult conversion – tried to make this more succinct
When I really like someone they know it	When I like someone they know it	More general
I often* laugh so hard that my eyes water or my sides ache	I laugh so loud that my eyes water	'Sides ache' removed as may be confusing
When I am alone, I can make myself laugh by remembering something from the past	Just thinking about something funny can make me laugh out loud	More general – 'the past' would have little relevance for young children
My laugh is soft and subdued	My laugh is really loud	'Soft and subdued' too difficult - also the King scale only had negative loadings on this item (see Appendix 1)
If a friend is surprising me with a gift, I wouldn't know how to react	When I'm given a present I get really excited	Appropriate sentiment
I apologise when I have done something wrong	If I've done something wrong I say sorry	Appropriate vocabulary
If someone makes me angry in a public place, I will "cause a scene"	If someone shows me up I get angry and shout	Appropriate vocabulary
I always express disappointment when things don't go as I'd like them to	If someone makes me angry I try to hide it	Used negative item with appropriate vocabulary
ADDITIONAL ITEMS on EEQ-C	If I think really sad thoughts I end up crying	Another aspect of intimate and negative expressivity
	I cheer loudly when my team is winning at sports day	An expression of enthusiastic emotion other than laughter!
	My friends think I'm fun to be with	As above
	If I really like something I tell everyone	More general expression of enthusiasm – not person related

*Often, and so forth, was deemed not needed; the scale itself requires the child to indicate how often this is true

Table 4: Revised EEQ items for children

The final questionnaire, on Emotional Perception, was also based on an adult test adapted by Gilbert (2001) to form a new test: the Affective Perception Test (APT); itself an adaptation of the 13 item Friedman Affective Communication Test (ACT) of 1980 (Friedman, Prince, Riggio & DiMatteo, 1980). Friedman's test, although a popular measure of emotional expressivity, was considered by Gilbert (2001) to be more an assessment of charisma and perception of

emotional response, and therefore a good basis on which to build a perception scale. Friedman et al., (1980) proposed on construction of the ACT that expression and charisma were inextricably linked, and the scale did indeed correlate well with extraversion. The ACT was a self-report questionnaire with a nine point Likert scale, as was Bryant's IECA. Gilbert changed the focus of APT items from measuring expression of emotion to a scale which would measure the perception of emotions, largely by rewording as well as revising items on the scale. The point of ambivalence was represented with 'not sure' or 'sometimes'. The choice of a variable scale label was made to enable each statement to make the most sense semantically to the child.

Table 5 overleaf shows the APT scale and the revision made for the Affective Perception Test for Children (APT-C). In common with the other two questionnaires, statements were designed to be about the child's playground and social world, their own emotional experience and friendships and how they responded to issues of intimacy and emotional expressiveness.

In addition, three items based around the understanding of one's own emotion (intrapersonal perception) – felt to be an important aspect of emotional perception not present in the current APT:

- When I feel bad, I don't know who or what is upsetting me.
- I'm pretty good at knowing what I'm feeling.
- When I am upset I know how I am feeling inside.

The item 'When I'm feeling fed up my friends do things to cheer me up' also contained aspects of self-awareness.

Although the questionnaires had different Likert ranges (from a scale of five to a scale of nine in the case of the empathy questionnaire) it was decided at this point to keep to this format and obtain responses from class teachers administering the questionnaires as to how difficult or easy the children found it to make choices. The three questionnaires were put together to comprise a 'Questionnaire Pack' and can be found in Appendix 1.6. The material was titled 'Friendships Questionnaire'. The use of the term 'Friendships' within the title was chosen to encourage children to think about their relationships and interactions with their peers, rather than in their home situation, when answering the questions. This was both for consistency and to target child-peer emotional issues.

APT - Gilbert Items	APT-C	Reason for change
I can see when a friend is angry with my by just looking at them	I know when someone is cross with me by looking at them. When a grown-up tells me off for being naughty I can tell if they are really angry with me.	This is an important area of perception for the child, so added an adult component
I recognise enthusiastic laughter in other people, regardless of whether I respond to it or not	I can tell if a good friend is happy or unhappy.	Same basic concept, but using happy instead of laughter
I am good at recognising emotions when they are expressed over the telephone	I can tell whether music is supposed to be happy, sad or angry.	Child may not be familiar with emotionality in telephone conversations – emotive media used
I know which of my friends are more or less likely than me to initiate physical contact during conversations	If I am playing and a friend looks angry, I can tell if they are being serious or playing too.	Used theme of intent and underlying affect in a playground scenario
I am very aware of when people are feeling nervous or embarrassed in public	When someone tells me something I can tell if they are lying or telling the truth.	Used theme of perception of internal affect which needs to be interpreted
I can tell a lot about what a person is experiencing by looking at their facial expression	If someone falls over, I can tell by their face if they are really hurt. I don't often know when someone is about to cry.	'Experience' too vague a concept, so chose two appropriate playground scenarios
I know which of my friends would make good actors or actresses	I know which of my friends are better at pretending than I am.	A difficult concept, worded for children's play
I am able to tell whether someone is anxious or not just by observing their body language	If I'm talking to someone and they don't understand I can tell by the look on their face.	Internal affect that needs to be interpreted by physical signs – chose facial signals as easier to understand
I can recognise people who are shy amongst strangers	I can tell when other children are unfriendly or just shy.	Translated for child's environment
I know when someone is trying to seduce me	I can tell if other kids want to play with me.	Translated to a child's peer play environment
In any social situation, I know who wants to be the centre of attention	If I'm telling a story I can tell if someone else is bored.	Not deemed translatable, chose opposite of interest in detecting boredom
Just by listening to someone's voice on a radio talk show, I can tell whether they are angry or not	I can tell if someone is angry by the sound of their voice.	Concept of discerning anger from vocal prompt applied to child's environment
I recognise immediately when someone wants to express intimacy to a greater or lesser degree than I am comfortable with	When I'm feeling fed up my friends do things to cheer me up.*	Couldn't translate this into perception related item, so focussed on the awareness of other's emotional intent.
When someone smiles at me, I can tell whether it is false or if it is really meant	When someone smiles I know if they really feel happy.	Appropriate translation

Table 5: Items on the APT-C – reasons for revision

At the end of each questionnaire the child was asked to indicate whether or not they enjoyed doing the task by choosing a smiley, neutral or cross face. This served not only to show how acceptable or unacceptable the children found the task but also provided an opportunity for the

child to give some feedback without any fear of criticism or being identified. The format for this can be found in Appendix 1.6.

3.2.1.2. Design Considerations: Validity of Questionnaires

The empathy questionnaire, having been developed and used for over 20 years, had already been validated. Convergent validity was established by successful correlation of the original IECA (Bryant, 1982) with the Feshbach and Roe (1968) measure using children of six years (.54) and the Mehrabian and Epstein (1972) measure (.85) using 12-year-old children in the 7th Grade. Divergent validity was established by a failure to correlate the IECA with a current social desirability measure (Crandall, Crandall & Katkovsky, 1965). Correlation with children aged nine years elicited a coefficient of .08; with children aged 12 a coefficient of .10. Scores on the IECA did not correlate with reading achievement, suggesting empathy was not determined by educational level. Interestingly, high scores on empathy achieved a significant negative correlation with teacher rated aggressiveness, but for males aged six and nine only. Bryant (1982) argues that this supports a relationship between ‘emotional responsiveness’ and behaviour, as her measure has a strong focus on affective empathy. Study 1 aimed to further this enquiry by examining empathic concern in two strong factorial areas: cognitive understanding (the ability to understand empathic role-taking) and affective response (the extent of empathic response). Study 4 with children excluded from mainstream schooling for behavioural difficulties, will seek to confirm the degree of relationship between cognitive and affective empathy and antisocial behaviour.

The EEQ-C does not differ in any major respects from the adult version (EEQ: see Appendix 1.7), other than the interpretation of adult items into language appropriate for children and the addition of four similar items to bring the scale from 16 to 20 items. The EEQ (King & Emmons, 1990) has been used over many years and most recently with Gilbert (2001). For both these reasons it was considered likely that the EEQ-C would prove a fairly robust scale.

The affective perception test was more of a challenge. As has been seen (Table 4) many of the items in the adult version had to be substantially revised, plus new items were added for the purpose of this study to look for possible areas of non-conformity in the perception of emotional competence between TD and special needs populations. Gilbert’s (2001) APT was itself validated against the measure from which it is originated in design, the ACT and the Facial and Posture Perception Test, an objective measure of emotional perception. Correlation with the ACT was not significant but the Facial and Posture Perception Test correlated well with the APT ($r=.57$; $p<0.05$) indicating that the APT works as a performance-related, as well as self-

report, measure. This is encouraging for the APT-C, which is otherwise in a vulnerable, though seminal, position. The fact remains that although there are several scales for the measurement of empathy, depression and anxiety (other measures used later in this project) in children, there is little self-report material available for other areas and none for affective perception. The APT-C, as part of a pack of questionnaire based exercises, will provide this facility.

Two areas which were considered to raise possible problems with this study were external and internal validity, in connection with sample sizes.

Recruiting participants from mainstream schools will inevitably produce uneven sample sizes – in this case for ethnicity and special needs status. To increase external validity it was intended to recruit as many children as possible from each school, reducing the chance of an unrepresentative sample being chosen. Unfortunately, however, it was often the parents of children with the most behavioural problems who refused consent. It had to be considered that this could result in it not being possible to make a fair, representative generalisation about behavioural children if the sample sizes were very small. In addition numbers of children fitting different cultural groups vary within schools. It was acknowledged that there may not be a large enough sample of each cultural group to enable a statistical comparison.

Although it is often a policy to test for internal validity by repeating questions (using slightly different wording) it was decided against doing this for the QP. Regardless of the fact that neither the IECA or the adult versions had specifically used this device, it would have meant increasing the size of the scale and the time taken to complete it. This disadvantage was felt to outweigh any the advantages particularly as school time is at a premium. Another consideration was the variation in test environment across the schools involved. Every attempt was made to keep testing standardised and ensure that children were tested alongside their peers and did not feel constrained to respond in any particular way. It was also acknowledged that it would be advisable to re-test the children at a later date. However, in terms of the timescales of this research this was not considered to be a logistical possibility for the control sample. It was decided to compare samples from different schools with each other in able to show whether or not there were consistent patterns of response. It may also be difficult to establish a relationship between emotional competence and behavioural problems, as there are other possible factors involved in behavioural manifestations. Gilbert (2001) did subject the APT to a test-retest of eight weeks, which showed a significant reliability of the scale ($r=.76$; $p<0.01$). Bryant's IECA performed well across a two-week interval, with reliability coefficients ranging from .74 to .86 ($p<0.01$) for all grades and sexes. Study 4 will focus on children exhibiting behavioural

problems, screening for depression and anxiety and taking into consideration the child's reading age.

3.2.1.3. Ethical Issues

As this study involved children less than 16 years old, informed parental consent (in accordance with British Psychological Society guidelines) had to be obtained along with individual child consent. Both children and parents had to be fully informed as to the nature and broad purpose of the study prior to gaining consent. Copies of consent forms and information sheets for all each study in this project can be found in the Appendix 1.2, 2.2, 3.2 and 4.2. These varied only slightly according to the requests of the administrating schools and the needs of the activity.

The issue of consent and anonymity was tackled in the following ways:

1. Information sheets explaining the study and its purpose were provided for parents and children.
2. No names were used in recording, analysis or publication of statistics gathered in this study. This was made clear to parents and children prior to the study commencing.
3. Schools were responsible for sending out and collecting parental consent forms. These were provided by the researcher according to criteria required by the British Psychological Society.
4. Child consent was gained by a form the child signed immediately prior to testing in the presence of the class teacher.

There were two further areas that could be an issue: 1) information about the study provided to the children and 2) debriefing.

1. Information about the study. Participants and parents were invited to ask questions of the head teacher of the school and informed of their right to withdraw from the investigation at any time. School staff were fully briefed by the researcher prior to the testing, during a meeting for that purpose, so they were fully acquainted with the study and able to reassure parents and children, particularly with regard to anonymity.
2. Debriefing. Although no deception was involved, the full nature of this study (to examine links between emotional competence and behavioural problems) was not discussed with the children. Children were told the study was being done to look at how boys and girls like them thought about their feelings and other children's feelings. This was felt a preferable explanation as it a) did not confuse them with issues they would not understand and b) would put them at ease regarding answering the questions, reassuring them there were no right or wrong answers. Children were given an

opportunity at the end of the test to show what they thought of each questionnaire. In fact, recent research has shown that with children as young as eight to 10 years the child has little real understanding of research aims and children were no better informed subsequent to debriefing than they were prior to debriefing (Hurley & Underwood, 2002). The focus should be on insuring the child is happy about what they are doing and does not feel under any undue pressure to comply with the research requirements. This was effective in that a small number of children declined to take the test at the point of administration.

3.2.1.4. Data Collection: Choice of Method

The choice was given to schools that chose to participate for either the researcher to administer the FQP in an environment of the schools choice, or for the class teacher themselves to administer the pack. To this end standardised instructions were prepared to be read out to any child using the FQP. These standardised instructions were based around the administration instructions for the original Bryant empathy questionnaire (see Appendix 1.5). The example used by Bryant of 'eating spinach' was changed to 'eating chocolate' as it was felt this would be something all children would be familiar with, whereas unfortunately not all primary aged children in the UK in the 21st century will have eaten spinach. In the event both schools chose to administer the FQP within the class situation, for all those children for whom consent had been obtained, and to withdraw the remainder of the children for another activity. This meant a relaxed and natural atmosphere for the children. The standardised instructions for the FQP can be found in Appendix 1.5.

3.2.2. Participants

The population for Study 1 comprised 269 Primary School children aged between seven and 11, with a mean age of 9.19 and standard deviation of 1.24. Of these 147 were boys and 121 girls. All children were attending mainstream schools in the Greater London area. Of these children 203 were classified from school records as having no developmental problems, educational disadvantage or problems with behaviour and were chosen to represent a typically developing sample (TD) Their responses provided a normalised (or standardised) set of responses to the questionnaire pack, based on age, sex and age appropriate literacy.

An opportunity sample of a further 36 children identified as having special educational needs (SEN) and 30 children as having social, emotional, and behavioural problems (SEBD) was

obtained. These children were at stage two or above on the classification register (see 3.3.2.1 below). There was no appearance of behavioural problems in the first year of primary schooling (year three). This could be explained in part by the lengthy protocol required to classify a child from stage one to stage two. A large proportion of SEN children were in year three; that behavioural problems were becoming manifest by year four may be related to the transition to junior schooling which can be a stressful time for some children. Over 50% of SEBD children were white and male, which was to be expected as externalising behaviour problems are more commonly found in males than females and the highest proportion of participants was white.

3.2.2.1. Divulgence of Behavioural Status

Schools were asked to categorise children as having SEN or SEBD (behavioural) difficulties if they are stage 2 or above on the Special Needs Register at the time of testing. The reasons for this were two-fold. Firstly, a stage 2 assessment indicates the child's problems have been confirmed over a period of time and deemed of sufficient import to require the provision of an Individual Education Plan (IEP). Secondly, it was easier for pragmatic reasons to use an established school criterion to classify children as either normal functioning or problematic. Participant categories were as follows:

- N = Normal control sample of typically developing children
- B = Behavioural difficulties – (including SEN with behavioural problems)
- S = Special educational needs

If a child was absent from the special needs register due to having shown no educational or behavioural concerns and a pattern of educational achievement that is age appropriate, with no disability, they are referred to as Typically Developing (TD) for the purposes of this study.

3.2.2.2. Demographical Information

Categorisations required of participants were sex, ethnicity, school year and chronological age. It was decided to add ethnicity to the list of categorisations obtained concerning the children in this study. Originally the categories for ethnicity were to be chosen based on categorisations used for imputations for the 2001 UK Census. However, these were found to be very wide ranging (and would provide sample sizes too small to analyse) and categories were narrowed after discussion with the first participating school. The school proposed that in the Enfield area there were two main ethnic groups other than 'white' and 'other': African-Caribbean and Turkish. The school was keen to involve their Turkish families but concerned that a proportion the parents would not be able to read the literature in English. Consequently Turkish translation

of the Parent Information and Consent forms was provided by a Turkish speaking colleague¹² for the school. (Please see Appendix 1.2). Subsequently a third school requested an additional category be included, that of 'Mediterranean'. Membership of some of these groups was very small and for analysis two categories were often used: White and Non-White.

School Year was used as the criterion for age in the analysis. School Year provided four discrete categories where children were broadly the same age and receiving the same level of teaching and discipline and were of a similar reading age. A total of 62 children were attending year three (mean age 7.68, SD 0.57); 67 children year four (mean age 8.53, SD 0.53); 69 children year five (mean age 9.65, SD 0.48) and 71 children year six (mean age 10.68, SD 0.58).

3.2.3. Procedure

Because administration of the Friendships Questionnaire Pack (FQP) would not be solely under the control of the researcher, it was important to fully standardise the procedure. This was achieved by three means:

- 1) provision of all printed materials, including letters and information sheets, by the researcher
- 2) printing and laminating of explicit standardised administration instructions by the researcher (see Appendix 1.5).
- 3) training of the staff to be involved with the administration by the researcher prior to the administration session and the provision of printed back-up materials detailing how to administer the FQP and allocate children to relevant groups for ethnicity and status (see Appendix 1.4).

Further to training, the author was not present in the classroom for any of the administrations of the FQP. Provision was made within schools for SEN pupils with a classroom assistant present in each classroom to assist, read questions or explain the activity. On a few occasions where a child had special support (for example in the case of a child with hearing difficulties) that support assistant worked alongside the child. After administration of the FQP within classrooms, teachers or assistants filled in demographic information before materials were collected from the school by the author.

¹² Thanks to Dr Ilhan Raman for her assistance with this project.

3.2.3.1. Scoring the Questionnaires

In Bryant's (1982) study of empathy the object was to establish a scale which had good test-retest reliability and correlated well with other measures, which it did. Bryant did not standardise the scoring system for future administrations. For the purposes of this study it was important to establish a standardised scoring system based on a normal range of responses to the questionnaires for comparative analysis in Study 4 and facilitate future use of the FQP in education and research.

Responses to questionnaire items were summed and converted into a percentage dependent upon: 1) the number of questions actually answered and 2) the maximum score possible for the questionnaire (questionnaire scales ranged from five to nine points). This enabled a percentage score to be calculated even if one or two items had not been answered. Although a percentage score is useful, it does not indicate how a child is performing in comparison to others in the group and as such raw scores were considered non-standardised scores. For research purposes z-scores would generally be used to indicate where the child or group of children were scoring comparative to the rest of the sample or population. However, z-scores on their own are generally not ideal for making comparisons, especially within an educational framework (Ravid, 2005).

Bearing in mind that these measure could be used within the school environment this had to be taken into consideration. Negative numbers do not appear to the layperson as helpful when describing the performance of a child, particularly as a raw score which is less than the average within a group will incur a negative z-score. Using z-scores as a delineator would also give a child with an average score a rating of close to zero. Explaining to a school that a child performed as average or had a negative z-score on any measure could be problematic. Z-scores are therefore often converted within educational frameworks (Ravid, 2005) into a scale where negative values are not possible, by means of a formula applied across all scores. This procedure is used for IQ score and SAT scores and provides a 'T' or standardised score for individual or group comparisons. It was adopted for standardisation of scores in Study 1.

Different computations of z-scores are used in analysis dependent upon what is required. For tests where a normal distribution of scores is being, or has been, established (e.g. IQ scores, height or weight of a population) the same mean and standard deviation is always used; in the case of IQ this is 100 and 15 respectively. Any new occasion of IQ testing uses this mean and SD in calculation, ensuring they are measured by the same yardstick (Ravid, 2005). The same is true of height and weight measurement. Both have a normal distribution and conversion to T scores will give an overall mean of 50 and standard deviation of 10. With school SAT tests the

procedure is a little different. Each year not only are different groups of children being evaluated but the test itself is modified. Of necessity the actual questions on the test have to change (the same applies to Multiple Choice Exams) so each year group is scored and evaluated separately (Ravid, 2005). As a consequence each year a child's raw score is converted into a z-score using the mean and standard deviation of that current year's population and from there a T score is calculated (the grade adjusted by weighting as well if one year's test is thought to be easier than a previous, for example). This means that if average T scores were compared year by year, the mean of these scores would always be 50 and the standard deviation would be 10.

The three questionnaires required standardising to be used as a yardstick against which to compare the performance of children with severe behavioural problems in Study 4. A TD sample of 203 children was chosen (representing children with no special educational needs or behavioural problems in accordance with school records) to comprise the norm for test responses across all factors of each emotional competence. This was achieved by using the mean and standard deviation of the TD sample to calculate the T scores for all children who took the test. Raw scores for the three questionnaires and their subscales were converted into standardised scores with a new mean of 50. Further material regarding the use of standardised scores in future administrations can be found in Appendix 1.8.

3.2.3.2. Constructing an Emotional Competence Scale

In order to investigate the model of Emotional Competence proposed in Chapter 1, it was important to identify firstly whether a coherent model of Emotional Competence could be achieved using the three questionnaires and secondly, to establish how Emotional Competence would factorise to provide underlying Affective Skills and Differences for the model.

Principles for good factor analysis would consider 200 participants as fair, and 300 participants as good, for the purpose of establishing strong, reliable factor solution (Comrey & Lee, 1992; cited in Tabachnick & Fidell, 2001). Using both the 269 full participant sample and the 203 TD sample was considered; however the dissimilar and non-cohesive presentation of correlations between competencies presented by SEN and SEBD children compared to the profile of TD children, plus the significant differences in some areas between SEN and TD children meant that the sample of 203 TD children alone was chosen to investigate Emotional Competence. Missing values in the dataset were replaced with the mean by SPSS during analysis. The substitution of a mean value in the case of missing values was acceptable as they were deemed 1) random missing values; 2) comprised less than 5% of the whole data set and 3) deletion would have meant an unacceptable loss of cases (Tabachnick & Fidell, 2001).

Scores for sub-factors of emotional competence (or items within these) are regularly combined to create a total emotional competence score in adult research, for example Bar-On (2000) and Mayer et al. (2000). Scores for the three Questionnaires in Study 1 were therefore combined to create a single Emotional Competence score (EC). In order to test the coherence of this model and determine whether all items contributed acceptably to a total score, 1) questionnaire scores were regressed individually against EC scores, taking into account sex and age as possible covariates; 2) a three-dimensional scatter plot of all three questionnaires was examined; 3) Items on the EC scale were factorised to elicit underlying Affective Skills and Differences and 4) the resulting model was tested using structural equation modelling.

Hierarchical multiple regression (HMR) was used to explore the relationship between each questionnaire and EC taking into account other possible IV's: age and sex. Dichotomous variables such as sex are permissible in HMR (Pallant, 2001). It was not possible to regress all three questionnaires against EC simultaneously as EC score was derived from the mean of the three questionnaire total scores.

Two possible scales of Emotional Competence were considered: 1) a full 61 item index, comprised of scores from the three questionnaires and 2) a reduced index containing only such items as were reliably associated with Affective Skills and Differences. Item analysis with Cronbach's alpha was used to determine the EC scale and three cut-points established to create groups of high, medium and low scoring children for comparative analysis. A minimum of .7 would ideally be required for an item analysis for a psychometric questionnaire (Kline, 1993).

3.2.3.3. Identifying Affective Skills and Differences

A Monte Carlo Parallel Analysis (PA) procedure was used to establish the number of factors to be extracted, as neither the Scree test or Kaiser criterion were conclusive. PA is now considered the most accurate method of assessing fixed factors for extraction in a principle components analysis (Hayton, 2000). Seven factors were considered by PA to be acceptable. As a 'rule of thumb' for orthogonal rotation, only variables with loadings of over .32 may be considered interpretable (Tabachnick & Fidell, 2001, p625) and this principle was applied to the analysis.

To confirm the presence of seven factors of emotional competence, Structural Equation Modelling (SEM) was undertaken using AMOS software. SEM merges factor analysis and multiple regression and displays correlations and co-variances within a proposed model of

interrelationships. The null hypothesis under test is that the theoretical model proposed in this thesis fits the data collected; therefore, non-significant Chi-square value was sought.

Three indices for confirmation of goodness of fit were chosen: a parsimony adjusted fit index, (weights indices of fit by number of parameters estimated) the Root Mean Square Error of Approximation (RMSEA) and two descriptive fit indices (comparing the target model to a baseline, or null, model), the Comparative Fit Index (CFI) and the Tucker Lewis Index (TLI). An adequate model is indicated where the CFI and TLI are >0.95 (Byrne 2001, pp83). The RMSEA is considered one of the most informative criteria in covariance structural modelling (Byrne, 2001, pp84) where a value of .000 indicates an exact fit. However, a figure of $<.05$ (and certainly $<.10$) is often considered acceptable to indicate a close fit of the model and <0.8 a moderate fit, in relation to the degrees of freedom (Byrne, 2001, pp85). Where the initial model was not satisfactory, modification indices within the package were used to adjust the model. A final indicator was the squared multiple correlation statistic (an indicator of the amount of variance of the dependent variable predicted by the independent variables in the model) for models with measured variables (Blunch, 2008, pp91) or significance values within the regression model for latent variables. SEM goodness-of-fit tests were used determine whether the pattern of variances and covariances in the data are consistent with the theoretical model. An acceptable fit confirmed that the theoretical model could not be disconfirmed; it is acknowledged that other models may fit the data equally well.

Two sets of analyses were performed: 1) Linear Regression and SEM were used to identify and confirm the fit of items on the EC scale to seven latent factors, and 2) Linear Regression to identify a predictive relationship between Affective Skills and Differences the three Key Components: Perception, Empathy and Expressivity. For the latter results were confirmed using SEM in a strictly confirmatory (SC) framework, as each model explored was already generated by theory and prior research. SEM goodness-of-fit tests were used determine whether the pattern of variances and covariances in the data are consistent with the theoretical model.

3.3. RESULTS

This study was an investigational study using an independent group questionnaire design. Several methods of investigation were appropriate for the three questionnaires on Key Competencies, and will be dealt with in this sequence:

1. Analysis of Key Competencies: the underlying structure (using principal components analysis) and establishment of sub-factors within each.
2. Sample statistics, including age, sex, ethnicity and school status.
3. Correlation of the three questionnaires (KC) in terms of participant scores.
4. Analysis of scores for perception, empathy and expression with respect to status, ethnicity and age.

3.3.1. Investigation of Structure

The three questionnaires were examined for structure with a principal components analysis with orthogonal Varimax Rotation. Oblimin Rotation was considered for all three questionnaires as is discussed for each questionnaire. A split-half reliability analysis using Cronbach's alpha was then used to confirm the consistency of the items on the scale and the inclusion of the items on each factor. The three questionnaires will be presented separately below. Although a good alpha value is important, as these were three questionnaires where responses are expected to vary considerably between groups (i.e. status, sex) too high an alpha would suggest that there was little room for variation in scoring on the scale.

3.3.1.1. Affective Perception Test for Children (APT-C)

3.3.1.1.1 Factor Analysis

The APT-C for Emotional Perception presented strongly with a two factor solution (see Appendix 1.9). An initial solution revealed seven factors loading at over 1.04. Examination of the Scree plot determined a two factor solution for a principal components analysis and a Varimax rotation (orthogonal) as theoretically the two factors of interpersonal and intrapersonal perception should be independent. Values of less than .3 were suppressed, as these would have little interpretative value. The first component (eigenvalue 3.28) accounted for 17.25% of the variance and consisted of 14 items with loadings ranging from .323 to .589. The items defining this factor represent the child's belief that they are good at recognising and understanding emotion in others, seen in Table 6 overleaf.

Factor 1 – Interpersonal Perception		
Item		Loading
1	When I'm feeling fed up my friends do things to cheer me up	.323
2	If I am playing and a friend looks angry, I can tell if they are being serious or playing too	.474
3	I can tell if a good friend is happy or unhappy	.419
4	I know when someone is cross with me by looking at them	.618
7	I can tell whether music is supposed to be happy, sad or angry	.435
9	If I'm talking to someone and they don't understand I can tell by the look on their face	.589
10	When someone tells me something I can tell if they are lying or telling the truth	.358
11	I can tell if someone is angry by the sound of their voice	.505
12	When someone smiles I know if they really feel happy	.326
13	If someone falls over, I can tell by their face if they are really hurt	.378
14	I can tell if other kids want to play with me	.409
15	If I'm telling a story I can tell if someone else is bored	.561
16	When a grown-up tells me off for being naughty I can tell if they are really angry with me	.335
18	I can tell when other children are unfriendly or just shy	.410

Table 6: Factor 1 - Interpersonal Perception

The second factor (eigenvalue 1.426), accounted for 7.504% of the variance and consisted of six items, four of which had already loaded higher on the first factor. This solution made little sense (Table 7 below), appearing to cover both intrapersonal perception (self-knowledge) and three items concerning the emotional intent and feelings of others.

Factor 2 – Intrapersonal Perception		
Item		Loading
5	When I feel bad, I don't know who or what is upsetting me.	.435
17	When I am upset I know how I am feeling inside.	.665
19	I'm pretty good at knowing what I'm feeling.	.727
13	<i>If someone falls over, I can tell by their face if they are really hurt</i>	.351
14	<i>I can tell if other kids want to play with me</i>	.339
18	<i>I can tell when other children are unfriendly or just shy</i>	.342

Table 7: Factor 2 – Intrapersonal Perception

The decision as to whether to exclude or retain items which load higher and more appropriately on one scale on a second scale has to be related to the degree to which they provide a cohesive interpretation. If the three double-loading items (13, 14 and 18) and the negatively worded item 5 are removed what remains of the second factor, although very small, relates exclusively to Intrapersonal perception: an understanding of the self (Table 8 overleaf).

Factor 2 – Intrapersonal Perception		
Item		Loading
17	When I am upset I know how I am feeling inside.	.665
19	I'm pretty good at knowing what I'm feeling.	.727

Table 8: Final items for Intrapersonal Perception

This smaller solution intuitively made sense of the scale. Although these items explained cumulatively only 24.75% of the total variance, there were so many sub-themes within the area of perception (including perception of music and other media) that it would be possible for several other factors to be extracted, but it would be doubtful if they would have any real meaning in the sense of explaining a child's understanding of their own perceptive abilities. Two items did not factorise at all: item 6, "*I know which of my friends is good at pretending*", and item 8, "*I don't often know when someone is about to cry*". These are both difficult items for young children to respond to.

Gilbert (2001) found a strong single factor solution which explained 31% of the variance for the original adult version of the emotional perception test (APT) but the two factor solution offered above is taken as the best account of the underlying constructs behind the child version of the questionnaire.

3.3.1.1.2. Item Analysis

Cronbach's alpha was carried out to look at the consistency of items in the questionnaire. The initial alpha for all 19 items was .716, which was within an acceptable range. Looking at Factor 1 alone, this gave an alpha of .713. Reliability analysis for Factor 2, as it only contained 2 items, was as expected disappointing with an alpha of .649. The decision had to be made whether to abandon Factor 2 or keep it as a possible identifier of difference in perceived ability, bearing in mind that Study 1 was to be used as a comparative study. Ultimately, further modification of the scale would be required for it to be a reliable model to use with school aged children. It was decided by the author that two means of analysis should be used; scores for the whole APT scale and a two factor solution with a second factor for intrapersonal perception, bearing in mind this is a scale which requires expanding.

Because of the poor item loading on the second factor, an Oblimin rotation was conducted for the Affective Perception test. Although this also extract two factors, these made no interpretative sense, as can be seen in Appendix 1.9 and for this and theoretical reasons it was decided to retain the orthogonal rotation as the best explanation of the scale.

3.3.1.2. Index of Empathy for Children and Adolescents, (IECA)

3.3.1.2.1 Factor Analysis

The IECA presented with either a two factor or a three factor solution using only items which loaded at .3 and over. Varimax orthogonal rotation and oblimin rotation were attempted. Theoretically, two independent factors were expected which orthogonal rotation confirmed. Oblimin rotation provided a minimum of five factors all of which overlapped consistently, and failed to converge after 25 iterations. When extraction was limited to two factors oblimin rotation produced a solution very similar to that of orthogonal but did not provide as interpretable a solution. Consequently it was rejected in favour of the orthogonal interpretation. The rotated two factor solution, with the first factor accounting for 16.73% of the variance, had an eigenvalue of 3.68; the second an eigenvalue of 1.93. Together they explained only 25.51% of the variance, but anything over a two factor solution did not neatly explain the matrix, with again many items loading on several factors.

Factor 1: Affective Empathy		
Item		Loading
1	It makes me sad to see a girl who can't find anyone to play with	.617
6	Seeing a boy who is crying makes me feel like crying	.498
7	I get upset when I see a girl getting hurt	.662
9	Sometimes I cry when I watch TV	.493
10	It's hard for me to see why someone else gets upset	.425
11	I get upset when I see an animal getting hurt	.549
12	It makes me sad to see a boy who can't find anyone to play with	.538
13	Some songs make me feel so sad I feel like crying	.669
14	I get upset when I see a boy being hurt	.609
19	Seeing a girl who is crying makes me feel like crying	.613

Table 9: Factor One - Affective Empathy

The two factor solution (see Tables 9 and 10) contained no overlap in items and explained the scale in terms of two factors: affective empathy and cognitive empathy, as had been predicted.

Factor 2: Cognitive Empathy		
Item		Loading
2	People who kiss and hug in public are silly	.483
3	I really like to watch people open presents, even when I don't get a present myself	.355
4	Boys who cry because they are happy are silly	.543
8	Girls who cry when they are happy are silly	.639
16	It's silly to treat dogs and cats as if they had feelings like people	.448
18	Kids who have no friends probably don't want any	.356
20	I am able to eat all my crisps even when I see someone looking at me wanting one	.309
21	I think it is funny that some people cry during a sad movie or while reading a sad book	.314

Table 10: Factor Two - Cognitive Empathy

On the whole, these factors correspond with the predicted groups of Cognitive and Affective empathy – with the possible exceptions of two items in Factor 2 – “*I really like to watch people open presents, even when I don't get a present myself*” and “*I am able to eat all my crisps even when I see someone looking at me wanting one.*” This could be explained in cognitive terms as they are both areas in which social display rules are well known – and therefore the items reflect cognitive attitudes as well as affective behaviours.

Four items did not factorise:

- 5 - Even when I don't know why someone is laughing, I laugh too.
- 15 - Grown-ups sometimes cry even when they have nothing to be sad about.
- 17 - I get mad when I see a classmate pretending to need help from the teacher all the time.
- 22 - I don't feel upset when I see a classmate being punished by a teacher for not obeying school rules.

Apart from the first of the four, these items did not load on a three factor solution either. These items were possibly difficult for the children to comprehend and should be revised for Study 4 (see Method, Study 4).

3.3.1.2.2. Item Analysis

The initial Cronbach's alpha for the whole 22 item scale was .594, which was not high. Bryant (1982) achieved alphas on the scale ranging from .54 for 1st graders (6 years), through .68 for 4th graders (9 years) through to .79 for 7th graders (12 years). However, item analysis on the two factors independently proved more encouraging. Factor 1, Affective Empathy, had an initial alpha of .776. Removing item 10 (reversed), “*It is (not) hard for me to see why someone else*

gets upset” would raise the alpha to .777, suggesting this item should be considered for rewording into a positively biased item. Factor 2, however, Cognitive Empathy, was not so strong with an alpha of .478. No items were unreliable on this scale. Although an alpha of .478 would not normally be acceptable, as this questionnaire was to be revised before further studies took place, it was considered that a rewording of items that were not loading strongly on the scale could well make a difference to the reliability of the factor. Cronbach’s alpha for empathy was as an indication the scale required revision, which could well alter future reliability. Inferential analysis for empathy uses the two factors of cognitive and affective empathy as proposed in the method for Study 1.

3.3.1.3. Emotional Expressivity Questionnaire for Children (EEQ-C)

3.3.1.3.1 Factor Analysis

Varimax orthogonal and oblimin rotations were attempted for the EEQ-C. Oblimin rotation failed to converge after 25 iterations although the Scree plot indicated a three factor solution. The un-rotated solution offered six extractions that held items with loadings of over .30. Reducing the extraction to three factors produced an almost identical solution to that of orthogonal rotation: the few exceptions were on the third factor, although the interpretation was the same. As King and Emmons (1990) used orthogonal Varimax for the EEQ it was decided to do the same for the EEQ-C. For this analysis only items with a loading of .3 and over were included in the factors. Like the King and Emmons (1990) adult version, the Emotional Expressivity Questionnaire for Children was explained best by a three factor solution, which accounted for 34.21% of the variance (see Appendix 1.9). Two of the factors were directly equivalent to adult EEQ factors. Factor 1 was made up of seven items with a combined eigenvalue of 3.549 and explained 17.75% of the variance. This factor related to the expression of intimate emotion, as can be seen in Table 11 below:

Factor 1: Intimate emotion		
Item		Loading
1	I tell people I love them	.701
2	I touch friends when we are talking	.438
4	I show that I like someone by hugging them	.751
7	I cry at sad films	.500
15	When I like someone they know it	.538
17	If I think really sad thoughts I end up crying	.593
18	If I really like something I tell everyone	.484

Table 11: Factor 1: Intimate Emotion

One other item loaded on Factor 1, but also on the other two factors – “*I laugh so loud that my eyes water*” – this item does not seem appropriate for Factor 1 and does not related to intimacy. It was decided to include this item only in the two factors where it loads most strongly and is appropriate.

The second Factor, with an eigenvalue of 1.935, explained 9.68% of the variance, and related to the expression of overt, or gregarious, emotion (King labelled this factor ‘positive emotion’). This Factor included 10 items, including item 15 “When I like someone they know it”, which also loaded on Factor 1. However, this item is considered appropriate in the context of both intimate and gregarious emotion, and has been retained on the scale, which can be seen in Table 12 below.

Factor 2: Gregarious/Overt emotion		
Item		Loading
3	Just thinking about something funny can make me laugh out loud	.504
5	When I am angry my friends can tell	.478
6	My laugh is really loud	.469
9	People can tell from my face what I’m feeling	.379
10	I laugh at lots of things	.618
11	When I’m given a present I get really excited	.519
15	When I like someone they know it (<i>loaded higher on Factor 1</i>)	.362
16	I laugh so loud that my eyes water	.417
19	My friends think I’m fun to be with	.355
20	I cheer loudly when my team is winning at sports day	.524

Table 12: Overt/Gregarious Emotion

The third Factor was less easy to explain initially. King and Emmons found a third factor for negative emotion, but this was not the case in this study. Factor 3 was composed of six items originally and had an eigenvalue of just 1.358; explaining 6.79% of the variance in the total solution. It contained three items which were loading negatively and was best interpreted as ‘covert’, or ‘hidden’ emotion – with the exception of two items: Item 19, suggesting the child thought they were fun to be with, which also loaded on Factor 2 and Item 5 suggesting the friends could tell when the child was angry, which also loaded more strongly on Factor 2. Both of these items were retained on Factor 2 alone (see Table 13).

Factor 3: Covert emotion – reluctance to show emotion		
Item		Loading
2	I (<i>don't</i>) touch friends when we are talking	(-).402
7	I (<i>don't</i>) cry at sad films	(-).449
8	If someone makes me angry I try to hide it	.498
14	I don't know what to do when someone does something nice for me	.655
16	I (<i>don't</i>) laugh so loud that my eyes water	(-).384

Table 13: Factor 3: Covert/Hidden emotion

This provided a scale of five items reflecting a reluctance to show emotion. Three negatively scoring items also loaded positively on Factor 1 and represent an unwillingness to share emotional experience and withholding of intimate expression (crying, touching).

Two items did not factor at all: 12) If someone shows me up I get angry and shout; and 13) If I've done something wrong I say sorry. Item 13 may not be really measuring expression at all - at least not emotional expression, but rather a moral aspect and more akin to empathy than expression. (NB this item did not load well on the King and Emmons adult EEQ (.24) and was not included in any factor, but nevertheless retained on the scale.)

3.3.1.3.2. Item Analysis

Using Cronbach's alpha the strength of the entire emotional expression scale was .681, increasing to .760 with the removal of seven items. Analysis of the three factors revealed an alpha of .710 for Intimate Expression, with all seven items loading, an alpha of .6489 for Overt Expression, with all 10 items loading and an alpha of .521 for Covert Expression, with five out of six items loading strongly. The scale improved to .535 with "*When I'm angry my friends can tell*" removed as it was more appropriate on Factor 2 (where it also loaded more strongly). It was decided, as with King and Emmons EEQ, to retain overall as many items as possible for the EEQ-C scale in order to allow any differences between children with behavioural disorders and typically developing peers to become apparent; particularly items concerned with the expression of anger, which may not differentiate within a typically developing sample. The final EEQ-C scale of 20 items, including modifications, can be found in Appendix 5.1.

3.3.1.4. Correlation of Questionnaires and Questionnaire Factors

Correlations were examined between each of the key competencies: APT-C (perception), IECA (empathy) and EEQ-C (expressivity) and also between main scales and factors on each of the

other two scales, for example APT-C full scale correlated with IECA full scale, cognitive empathy and affective empathy. Factors on each scale will be correlated against factors on other scales; for example cognitive and affective empathy correlated with interpersonal and intrapersonal perception. In this way it is intended to identify and link competences in different areas.

3.3.2. Sample Statistics

Table 14 below shows the number of participants falling into each category of sex, ethnical group and behavioural status.

ETHNICITY	SEX	Typically Developing	Special Educational Needs	Emotional & Behavioural Problems	Total
White	Male	61	11	15	87
	Female	57	10	1	68
	Total	118	21	16	155
Turkish	Male	14	2	1	17
	Female	10	1	-	11
	Total	24	3	1	28
African-Caribbean	Male	17	3	4	24
	Female	10	1	4	15
	Total	27	4	8	39
Other	Male	13	3	3	19
	Female	21	5	1	27
	Total	34	8	4	46

Table 14: Participants in the study by sex, ethnicity and behavioural status

The largest ethnic group was white which reflects the cultural dominance in Enfield and Barnet. The ethnic category 'Mediterranean' was merged with the 'Other' category for analysis (see Method section). Over 50% of SEBD children were White and Male, which was to be expected (see Method). Numbers of Special Needs children were fairly proportionately split.

Children were age-categorised in two ways: age at time of test, and year at school. For the purposes of this report 'school year' will be used to represent age. Details are found in Table 15 overleaf. Children showing behavioural disturbances (SEBD) were not evenly distributed across year groups; year four had the largest number, followed by years six and five.

Year three had no cases, making it difficult to compare behavioural trends in responses over the full range of year groups. The highest proportion of boys with Special Needs is found in year three, whereas in contrast behavioural problems appear first in year 4.

STATUS		Child's School Year				Total
		3	4	5	6	
TD	Male	25	17	34	29	105
	Female	23	28	19	28	98
	Total	48	45	53	57	203
SEN	Male	12	2	3	2	19
	Female	2	4	7	4	17
	Total	14	6	10	6	36
SEBD	Male	-	11	6	6	23
	Female	-	4	-	2	6
	Total	-	15	6	6	29

Table 15: Class group statistics for both schools

Bar charts showing the spread of scores for each competency across the three status groups can be seen in Appendix 1.9.

The mean age of the TD group was 9.21 (SD 1.27); minimum age six years. The three children aged six were in the same year group as other children aged seven and deemed appropriate participants from the point of view of maturity and reading age. The mean age of the SEN group was 8.89 (SD 1.24); minimum age seven years. Mean age of the SEBD group was 9.41 (SD 1.02); minimum age eight years and reflecting the absence of SEBD children in year three.

3.3.3. Correlation of Questionnaires

3.3.3.1. T Scores Correlations for Three Questionnaires

In order to compare correlation patterns for scales and factors between status groups T scores (see below) were used. Table 16 below shows correlations between questionnaires for the whole sample and each status group.

Status Group	T Scores		Empathy	Emotional Expressivity
WHOLE SAMPLE N=268	Affective Perception	Pearson Correlation	.110	.144
		Sig. (2-tailed)	.071	*.019
	Empathy	Pearson Correlation		.313
		Sig. (2-tailed)		** .000
TD N=202	Affective Perception	Pearson Correlation	.085	.116
		Sig. (2-tailed)	.229	.100
	Empathy	Pearson Correlation		.342
		Sig. (2-tailed)		** .000
SEN N=36	Affective Perception	Pearson Correlation	.250	.278
		Sig. (2-tailed)	.142	.101
	Empathy	Pearson Correlation		.203
		Sig. (2-tailed)		.236
SEBD N=30	Affective Perception	Pearson Correlation	.188	.332
		Sig. (2-tailed)	.320	.073
	Empathy	Pearson Correlation		.190
		Sig. (2-tailed)		.316

Table 16: Correlations between questionnaires in Study 1

Significant correlations were found between Emotional Expressivity and both Empathy and Affective Perception for the full sample only; for typically developing children a significant correlation was found between Emotional Expressivity and Empathy. No other significant correlations were found.

3.3.3.2. Correlation of Factor T-Scores: Comparison Between Status Groups

3.3.3.2.1. TD Sample Correlations

As the standardisation sample, correlations found for TD children form the basis of what would generally be accepted as a normal profile of relationships between the three scales and their factors. Significant correlations of all three questionnaires and factors for the TD group can be seen overleaf in Table 17.

	Intimate Expression	Overt Expression	Covert Expression	Inter-personal Perception	Intra-personal Perception	Affective Empathy	Cognitive Empathy	APT-C	IECA	EEQ-C
Intimate Expression		** .456	** -.632			** .522	** .282		** .478	** .831
Overt Expression	** .456		** -.372	** .224	** .174	* .142		** -.229		** .810
Covert Expression	** -.632	** -.372				** -.367			** -.224	** -.467
Interpersonal Perception		** .224			** .296			** .947		
Intrapersonal Perception		** .174		** .358				** .524		
Affective Empathy	** .522	* .142	** -.367				** .296		** .796	** .376
Cognitive Empathy	** .282					** .296		.051	** .742	** .239
APT-C		** -.229		** .947	** .524		.051			
IECA	** .477		** -.224			** .796	** .742			** .342
EEQ-C	** .831	** .810	** -.467			** .376	** .239			
AGE			** .243		* .155		** .334	** .189	* .138	

* = Significant to $p < 0.05$; ** = Significant to $p < 0.01$

Table 17: Significant Correlations for TD sample

Age was also positively correlated with APT overall score, Intrapersonal Perception, IECA total score, Cognitive Empathy and Covert Expressivity in the typical population when the influence of sex of participant was partialled out.

Not all significant correlations within the questionnaires were retained when age and gender were controlled for. Affective Empathy no longer positively correlated with Overt Expression when controlling for sex, although still evident when controlling for Age. Overt Expression still positively correlated with Affective Perception, both Intra- and Interpersonal Perception, regardless of Age and Sex.

3.3.3.2.2. SEN Sample Correlations

Whilst scales were still correlated for the SEN sample, the pattern varied from that of TD children in several aspects (see Table 18 overleaf). Notably, Overt Expression did not correlate with either Interpersonal or Intrapersonal Perception or with perception as a whole, suggesting children's scores for perception were not connected to the degree of outward expression manifest. There was also no correlation between Overt Expression and Affective Empathy. Correlations of factors within scales remain, but there was no correlation between the scales of Empathy and Expressivity. No significant correlation was observed between Age and any factor or competence.

	Intimate Expression	Overt Expression	Covert Expression	Inter-personal Perception	Intra-personal Perception	Affective Empathy	Cognitive Empathy	APT-C	IECA	EEQ-C
Intimate Expression		*.415	**-.574		*.356	** .645	-		*.408	** .742
Overt Expression	*.415		**-.405	-	-	-		-		** .863
Covert Expression	**-.574	**-.405				**-.435	*.361		-	*-.421
Interpersonal Perception		-			-			** .881		
Intrapersonal Perception	*.356	-		-		** .450		** .597	*.417	
Affective Empathy	** .645	-	**-.435		** .450		-	*.330	** .866	*.359
Cognitive Empathy	-		*.361						** .457	
APT-C				** .881	** .597	*.330				
IECA	*.408		-		*.417	** .866	** .457			-
EEQ-C	** .742	** .863	*-.421			*.359				
AGE			-		-	-	-	-	-	

*Significant at $p < 0.05$ **Significant at $p < 0.01$ - no significance compared to TD sample

Table 18: Correlations for SEN sample

3.3.3.2.3. SEBD Sample Correlations

Compared to the TD sample, few significant correlations were observed in the SEBD sample, seen below in Table 19.

	Intimate Expression	Overt Expression	Covert Expression	Inter-personal Perception	Intra-personal Perception	Affective Empathy	Cognitive Empathy	APT-C	IECA	EEQ-C
Intimate Expression		** .377	**-.646			*.371	-		-	** .743
Overt Expression	** .377		-	-	-	-		*.397		** .833
Covert Expression	**-.646	-				** .469			-	-
Interpersonal Perception		-			-			** .950		
Intrapersonal Perception		-		-				-		
Affective Empathy	*.371	-	** .469				-		** .773	-
Cognitive Empathy	-					-			** .532	-
APT-C		*.397		** .950	-					
IECA	-		-			** .773	** .532			-
EEQ-C	** .743	** .833	-			-	-		-	
AGE			-		-	-	-	-	-	

*Significant at $p < 0.05$ **Significant at $p < 0.01$ - no significance compared to TD sample

Table 19: Correlations for SEBD sample

Whereas scores for Affective and Cognitive Empathy are significantly correlated in TD children ($p < 0.01$) this is not the case for either SEN or SEBD children. Significant correlation between Affective Empathy and Intimate Expressivity was retained but a previously negative correlation between Affective Empathy and Covert Expressivity became a positive correlation in SEBD children. As with SEN children, no significant correlation with Age was observed.

3.3.4. Inferential Analysis of Questionnaires

No significant difference was found between participating schools in scores for either of the three measures or their sub factors. Four within-group areas were investigated: status groups, sex, age (measured by year at school, which differentiates not only by age but by educational level and was considered the best developmental measure) and ethnic group. The five ethnic categories were initially merged into four groups (see Method, Study 1). As this compromised the Levene statistic in parametric tests the bipolar category of Ethnicity (White/Non-White) was employed. Two types of test were used: to explore possible significant differences in scores between Status groups, and whether these were independent of age considerations, two-way between-groups analysis of variance (two-way ANOVA) was conducted for each of the three questionnaires and their subfactors. If homogeneity could not be assumed, one-way ANOVA was employed for each independent variable. Non-parametric Kruskal-Wallis was used if assumptions of homogeneity could not be obtained for parametric tests. To explore the effects of Year at School, Sex or Ethnicity on scores for all three questionnaires in the TD sample, a one-way between-groups multivariate analysis of variance (MANOVA) was conducted. Preliminary assumption testing was conducted to check for normality, univariate and multivariate outliers, homogeneity of variance-covariance matrices and multicollinearity. As correlations between questionnaire factors were likely to lead to multicollinearity, separate analyses were performed on questionnaire scores and sub factors. Non-parametric Kruskal-Wallis was used if assumptions of homogeneity could not be obtained for parametric tests. Further analysis involved comparison between groups of individual questionnaire items most relevant to this research; namely items regarding anger. Tables and figures supporting analyses can be found in Appendix 1.10.

3.3.4.1. Comparing Status Groups

In order to ascertain whether there were significant differences in scores between Status Groups, independent of age considerations, a two-way between-groups ANOVA was conducted to explore the impact of Status group and Year at School on Affective Perception. There were significant main effects for Status Group [$F(2,258)=3.301$, $p<0.05$] with a small effect size (eta squared = .03) and Year at School [$F(3,258)=3.295$, $p<0.05$] with a small to moderate effect size (eta squared = .04). There were no significant interaction effects ($p=.316$). Post Hoc testing with Tukey revealed SEN children are scoring significantly lower than TD (Mean difference - 5.23) or SEBD (Mean difference -7.54) for Affective Perception. Children in Year three across

all status groups are scoring significantly lower than Year four (Mean difference -8.22), Year five (Mean difference -5.46) or Year six (Mean difference -6.90).

A highly significant Levene statistic was found for Empathy scores, so a one-way ANOVA was attempted for each independent variable (IV). The Levene statistic for Status group was also significant; non-parametric Kruskal-Wallis test found no significant difference between Status groups ($p=.713$) in Empathy scores. Using ANOVA no significant difference was found in Empathy for year at school [$F(3,265)=2.629$; $p=.051$], although post hoc analysis suggested a significant difference between years 3 and 6 with year 3 scoring significantly lower than year six (mean difference 4.55; $p<0.05$).

Using ANOVA no significant differences in Emotional Expressivity scores was found for Status group ($p=.954$). The Levene statistic for Year at School was significant, and Kruskal-Wallis found no significant difference between Year groups ($p=.393$) in Expressivity scores.

3.3.4.1.1. Comparing Status Groups in Questionnaire Factors

Using two-way between groups ANOVA to investigate Status and age differences in Interpersonal Perception scores, a significant main effect was found for Year at School [$F(3,258)=3.103$, $p<0.05$] with a small to moderate effect size (eta squared = .04). The main effect for Status groups ($p=.101$) was not significant and there was no significant interaction between Status and Year ($p=.228$). Post Hoc testing with Tukey found children in Year three scoring significantly lower for Interpersonal Perception than Year four (Mean difference -7.62) and Year six (Mean difference -5.56). For Intrapersonal Perception scores, Main effects for Year at School ($p=.060$) and Status groups ($p=.101$) were not significant and there was no significant interaction between Status and Year ($p=.228$).

Examining factors of Empathy, no significant difference was found for Affective Empathy between Status groups ($p=.592$) or Year at School ($p=.806$). Using Kruskal Wallis, no significant difference was found for Cognitive Empathy between Status groups ($p=.320$). However, one-way ANOVA found a significant difference in Cognitive Empathy scores for Year at School [$F(3,265)=11.060$, $p<0.01$] with children in Year three scoring significantly lower than children in Year five (Mean difference -5.60) or Year six (Mean difference -7.80).

Using ANOVA, no significant difference in Intimate Expressivity was found for Status groups ($p=.400$), and using Kruskal Wallis no significant difference for Year at School ($p=.185$). Investigating Overt Expressivity, two-way between groups ANOVA found no significant main effect for either Status ($p=.567$) or Year at School ($p=.506$) and no significant interaction

between variables ($p=.306$). Investigating Covert Expressivity, using two-way between groups ANOVA, a significant main effect was found for Year at School [$F(2, 257)=2.932$, $p<0.05$] with a small effect size ($\eta^2 = .03$), again with children in Year three scoring significantly lower than those in Years five (Mean difference -5.70) and Year six (Mean difference -6.76). Neither the main effect for Status group ($p=.071$) or the interaction between Year and Status ($p=.069$) were significant.

3.3.4.1.2. Subscale Comparisons in Status Groups

There was no significant difference between how SEBD children viewed their interpersonal and their intrapersonal skills. SEN children, however, viewed their intrapersonal skills significantly better than their interpersonal skills on a Wilcoxon test: $z=2.341$; $p<0.01$. No difference was found in how SEBD children rated their interpersonal and intrapersonal skills. There was no significant difference in the way TD, SEN or SEBD children rated their cognitive and affective empathy. No difference was found between ratings of overt, intimate or covert expression for TD, SEN or SEBD groups.

3.3.4.1.3. Scoring on Anger Items in Status Groups

One way ANOVA was used to see whether SEBD children would confess to being more comfortable with the expression of anger than TD or SEN peers. Two items were relevant. For item 5, "*When I am angry my friends can tell*", SEBD children scored significantly higher than SEN children: $F(2,263)=4.207$, $p<0.05$, but not TD. However for item 12, "*If someone shows me up I get angry and shout*", SEBD children scored higher than both other groups [$F(2,263)=5.371$; $p<0.01$]: SEN (mean difference 1.16 , $p<0.05$) and TD (mean difference 1.25 , $p<0.01$). This effect was confirmed irrespective of the sex of the participant.

3.3.4.2. Effects of Age, Sex and Ethnicity in TD Sample

As the purpose of this study was primarily to establish emotional competence in typically developing children, the TD sample alone was examined with regards to Sex, Ethnicity (White and Non-white) and age differences (Year at School).

3.3.4.2.1. Age Differences in Scores

A one-way between-groups MANOVA was conducted to explore the impact of Age on scores for Perception, Empathy and Expressivity. There was a statistically significant difference for Year on the combined dependent variables (DVs): $F(3,198)=3.817$, $p<0.01$; Wilk's $\Lambda=.98$; partial $\eta^2=.06$. When the results of the DVs were considered separately, only Affective Perception reached a statistically significant difference using a Bonferroni adjusted alpha level of .017: $F(3,198)=6.467$, $p<0.01$, partial $\eta^2=.09$. An inspection of

mean scores showed children in year three are scoring lower for Affective Perception than years four (mean difference -7.308), five (mean difference -6.101) and six (mean difference -7.289).

A one-way between-groups MANOVA was conducted to explore the impact of Age on subscales of the three questionnaires. There was a statistically significant difference for Year on the combined DVs: $F(3,198)=4.40$, $p<0.01$; Wilk's Lambda=.99; partial eta squared=.14. When the results of the DVs were considered separately, four subscales reached a statistically significant difference using a Bonferroni adjusted alpha level of .017: Intimate Expressivity [$F(3,198)=4.321$, $p<0.01$, partial eta squared=.06], Covert Expressivity [$F(3,198)=6.149$, $p<0.01$, partial eta squared=.09], Interpersonal Perception [$F(3,198)=4.372$, $p<0.01$, partial eta squared=.06], and Cognitive Empathy [$F(3,198)=11.060$, $p<0.01$, partial eta squared=.14]. An inspection of mean scores showed children in Year three scoring higher for Intimate Expressivity than years four (mean difference 5.601) and five (mean difference 6.015); and lower for Covert Expressivity than years four (mean difference -5.25), five (mean difference -7.49) or six (mean difference -6.83). Children in year three also scored lower for Interpersonal Perception than years four (mean difference -6.56) or six (mean difference -5.83) and lower for Cognitive Empathy than years five (mean difference -6.46) or six (mean difference -8.34).

3.3.4.2.2. Sex Differences in Scores

A one-way between-groups MANOVA was conducted to explore the impact of Sex on scores for Perception, Empathy and Expressivity. There was a statistically significant difference between Sexes on combined DVs: $F(1,200)=6.800$, $p<0.01$; Wilk's Lambda=.98; partial eta squared=.09. When the results of the DVs were considered separately, both Empathy and Expressivity reached a statistically significant difference using a Bonferroni adjusted alpha level of .017: Empathy $F(1,200)=16.489$, $p<0.01$, partial eta squared=.08; Expressivity $F(1,200)=8.509$, $p<0.01$, partial eta squared=.04. An inspection of mean scores showed girls scoring higher than boys for both Empathy (mean difference 5.49) and Expressivity (mean difference 4.03).

A one-way between-groups MANOVA was conducted to explore the impact of Sex on subscales of the three questionnaires. There was a statistically significant difference between Sexes on combined DVs: $F(1,200)=4.68$, $p<0.01$; Wilk's Lambda=.99; partial eta squared=.14. When the results of the DVs were considered separately, three subscales reached a statistically significant difference using a Bonferroni adjusted alpha level of .017: Intimate Expressivity [$F(1,200)=21.222$, $p<0.01$, partial eta squared=.10], Covert Expressivity [$F(1,200)=21.551$, $p<0.01$, partial eta squared=.10] and Affective Empathy [$F(1,200)=17.154$, $p<0.01$, partial eta squared=.08]. An inspection of mean scores showed girls scoring higher for Intimate

Expressivity (mean difference 6.18) and lower for Covert Expressivity (mean difference -6.23) than boys and higher in Affective Empathy (mean difference 5.63) than boys.

3.3.4.2.3. Ethnicity Differences in Scores

A one-way between-groups MANOVA was conducted to explore the impact of Ethnicity on scores for Perception, Empathy and Expressivity. There no statistically significant difference between White and Non-white children on combined DVs: $F(1,200)=.994$, $p=.770$; Wilk's $\Lambda=.98$; partial eta squared=.01.

A one-way between-groups MANOVA was conducted to explore the impact of Ethnicity on subscales of the three questionnaires. There was no statistically significant difference between White and Non-white children on combined DVs: $F(1,200)=.950$, $p=.187$; Wilk's $\Lambda=.99$; partial eta squared=.05.

3.3.4.2.4. Subscale Comparisons in TD children

No significant differences were found in how boys or girls rated their intrapersonal and interpersonal skills. No difference was found in the way boys rated their Cognitive and Affective Empathy, but girls rated themselves higher for Affective Empathy than for Cognitive Empathy: $z=1.990$; $p<0.05$. Boys rated themselves as significantly more covertly expressive than overtly expressive ($z=2.616$; $p<0.01$) or intimately expressive ($z=3.684$; $p<0.01$) and as more overtly expressive than intimately expressive ($z=2.460$; $p<0.01$). In contrast, girls saw themselves as significantly more intimately expressive than either overtly expressive ($z=2.726$; $p<0.01$) or covertly expressive ($z=4.101$; $p<0.01$) and more overt than covert ($z=2.794$; $p<0.01$) in expressivity.

3.3.4.2.5. Effects of Sex of Stimulus on Empathy in TD Children

A possible interaction between effects of sex of stimulus and sex of participant in Empathy scores was investigated. Mean scores for the eight items referring specifically to males or females were compared using independent groups t tests. A significant difference was found for sex of stimulus, with female items incurring higher reports of empathy overall than male items: $t(268)=2.942$; $p<0.01$. No difference was found between how boys rated male and female items ($p=.630$) but a significant difference was found in how girls rated males and females, with girls responding more empathically to females than to males: $F(1,266)=36.026$; $p<0.01$. This was confirmed by Mann-Whitney U as homogeneity could not be assumed ($z=5.486$; $p<0.01$).

3.3.5. Testing the Theoretical Model of Emotional Competence

3.3.5.1. Emotional Competence as a Three-Component Model

All analyses in this section use the 203 participant TD sample and raw scores. Initial scatter plots of each questionnaire to EC showed a linear relationship most likely in all cases. These are presented in Figures 2, 3 and 4 below.

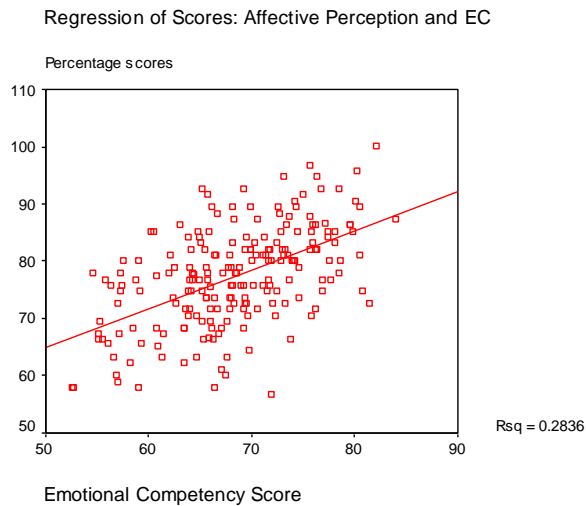


Figure 2: Correlation of Affective Perception showing Regression line

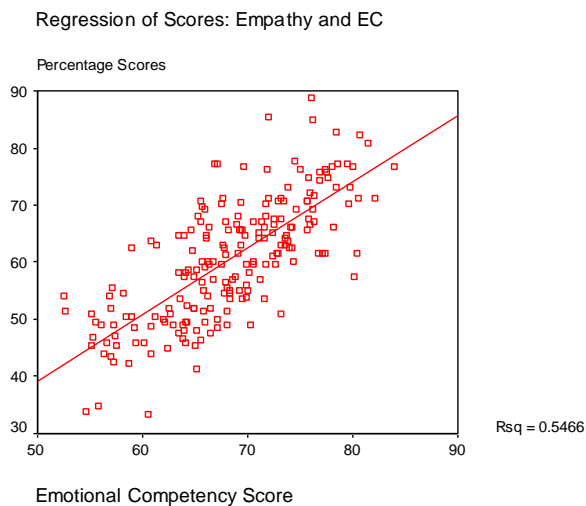


Figure 3: Correlation of Empathy showing Regression line

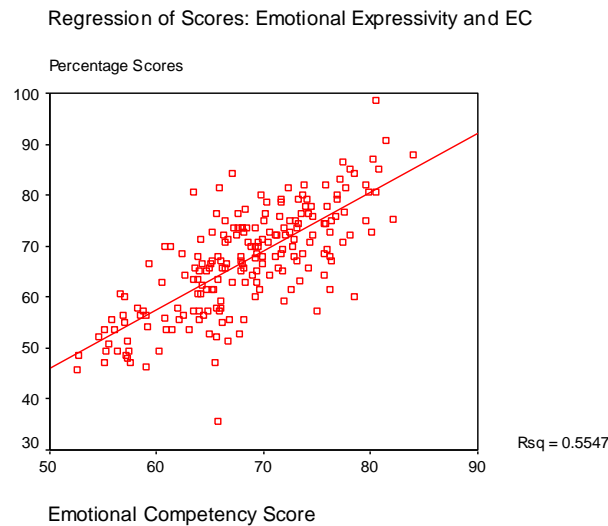


Figure 4: Correlation of Emotional Expressivity showing Regression line

3.3.5.2. Emotional Competence and Other Variables

Hierarchical multiple regression (HMR) was used to explore the relationship between each questionnaire and EC taking into account other possible IV's: age and sex. Examining Affective Perception (AP), 9% of the variance in EC was due to age and sex, out of an overall 36% for the overall model. An R^2 change indicated 27% of the variance in EC scores was predicted by the AP questionnaire ($p < 0.001$) and the model as a whole was significant: $F(3, 199) = 36.67$, $p < 0.001$. Only two IV's contributed to the model: AP ($\beta = .53$) and Sex ($\beta = .26$). Examining Empathy (EM) the R^2 change indicated 46% of the variance in EC scores was predicted by the EM questionnaire ($p < 0.001$) out of an overall 55% for the overall model, which was significant: $F(3, 199) = 81.76$, $p < 0.001$. Only the one IV contributed to the model: EM ($\beta = .72$). Examining Emotional Expressivity (EE) the R^2 change indicated 50% of the variance in EC scores was predicted by the EE questionnaire ($p < 0.001$) out of 77% for the overall model, which was significant: $F(3, 198) = 94.52$, $p < 0.001$. All three IV's contributed to the model: EE ($\beta = .72$), Age (.16) and Sex (.11). A three dimensional scatter plot of the three questionnaires (Figure 5 overleaf) shows a strong cohesion despite the presence of some outliers.

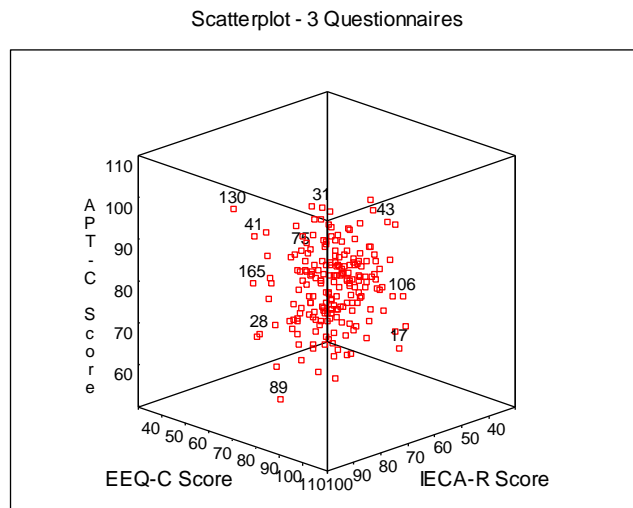


Figure 5: 3D Scatter plot of all three Questionnaires

Investigation of multivariate outliers using Mahalanobis D^2 revealed no extreme cases within the sample, only a very wide range in scoring (a Mahalanobis Distance of from 0.48 to 16.83) and a standard deviation of 2.45, which is within the accepted limit of ± 3 for a sample size of 202.

3.3.5.3. Establishing a Scale of Emotional Competence

The combination of three questionnaires provided 61 available items. A Monte Carlo Parallel Analysis (PA) procedure was used to establish the number of factors to be extracted, as neither the Scree test or Kaiser criterion were conclusive. Seven factors were considered by PA to be acceptable. Initial rotated solutions gave complex interpretations, with many variables loading on more than one factor, but generally poorly (under 0.32). Principle Components Analysis (PCA) was repeated excluding all items loading at less than .3. The resultant solution of seven factors was considered interpretable. Oblimin rotation was attempted but failed to achieve a solution after 25 iterations for any combination of TD participants or the total sample, confirming the use of a Varimax orthogonal rotation. A reliability analysis on each of the seven prospective factors revealed four were fairly secure with alpha ranging from .81 to .65 and three less secure with alpha ranging from .54 to .47 (see Table 19, page 108).

3.3.5.4. Identifying Affective Skills and Differences

In order to fully test the model, the seven factors were treated as latent (unobserved) variables against which the corresponding items from the pca analysis were fitted. The first factor achieved a satisfactory fit retaining 12 items: χ^2 (df40) = 36.798, $p = .615$ (Figure 6 overleaf).

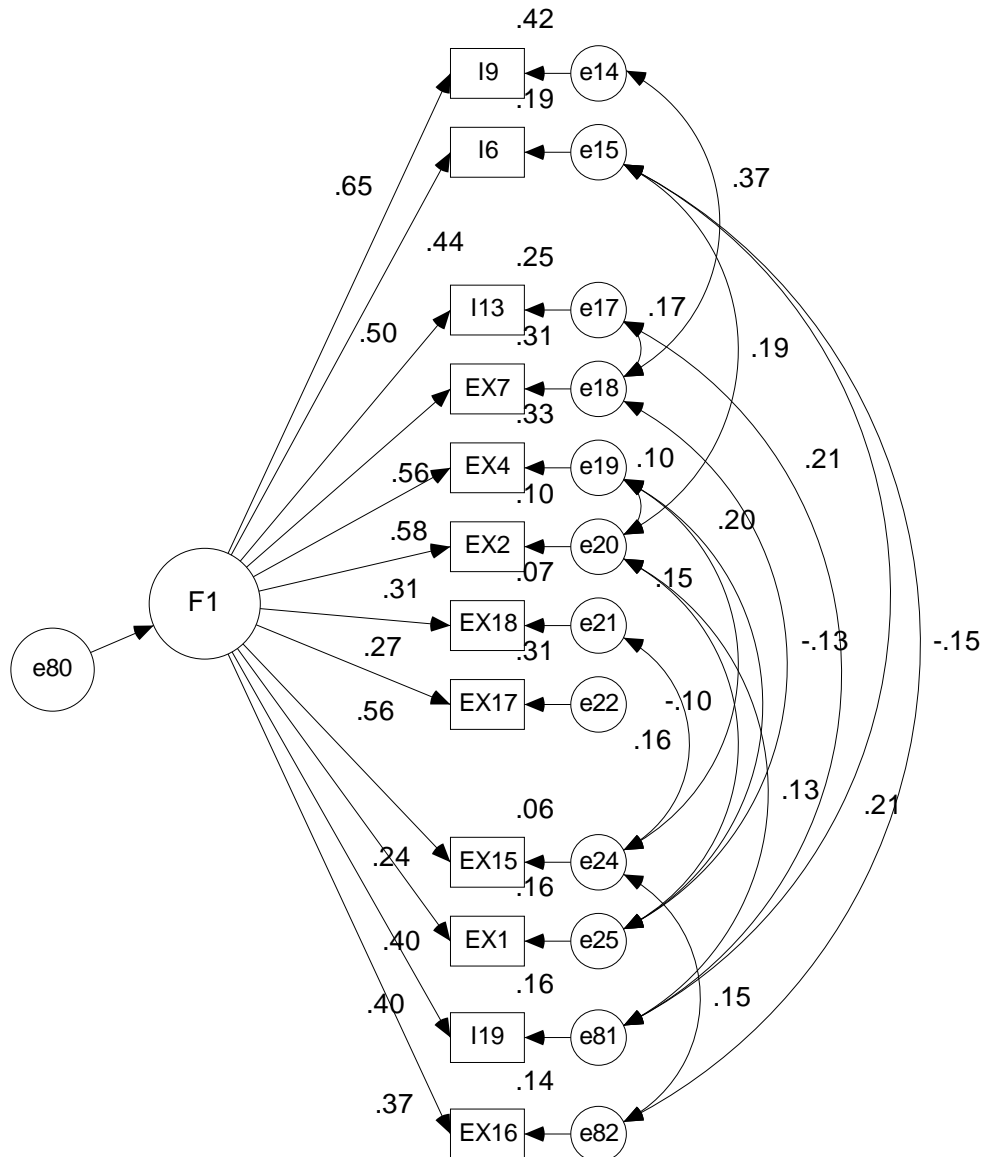


Figure 6: EC Items loading on Factor 1, showing standardised regression weights

Regression weights of all items were significant at $p < 0.001$ apart from EX18 ($p < 0.01$) and EX15 ($p < 0.05$). Goodness of fit indices CFI at 1.000, TLI at 1.013 and RMSEA at 0.000 confirmed the model, which also indicated covariances between many items.

The second factor incorporated 10 items [$X^2(df28)=30.749$, $p=.328$], as shown in Figure 7 overleaf, and showed comparatively few covariances between items.

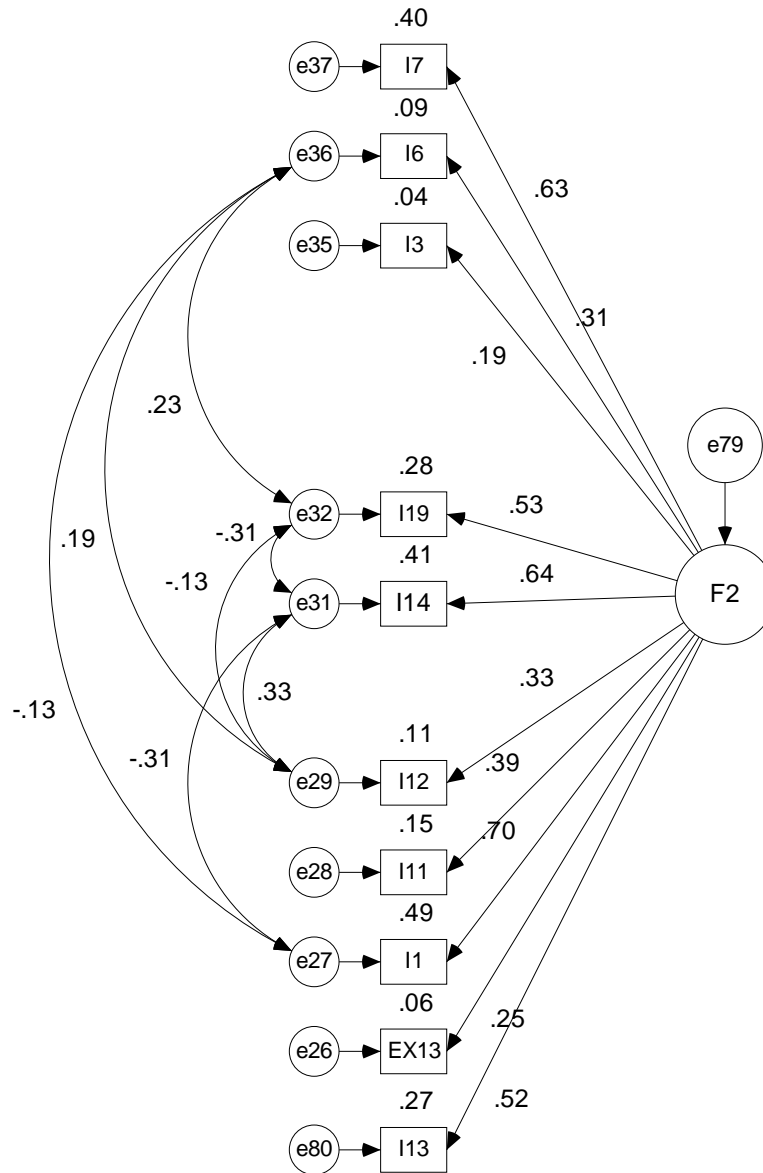


Figure 7: Items loading on Factor 2, showing standardised regression weights

Regression weights on all 10 items were significant at $p < 0.01$ apart from I3 and I6 ($p < 0.05$). Goodness of fit indices of CFI at .990, TLI at .985 and RMSEA at 0.022 confirmed a good model fit.

The third factor retained 11 out of 14 items (see Figure 8 overleaf) with a statistic of $\chi^2(df39)=28.697$; $p=.887$; a very strong model.

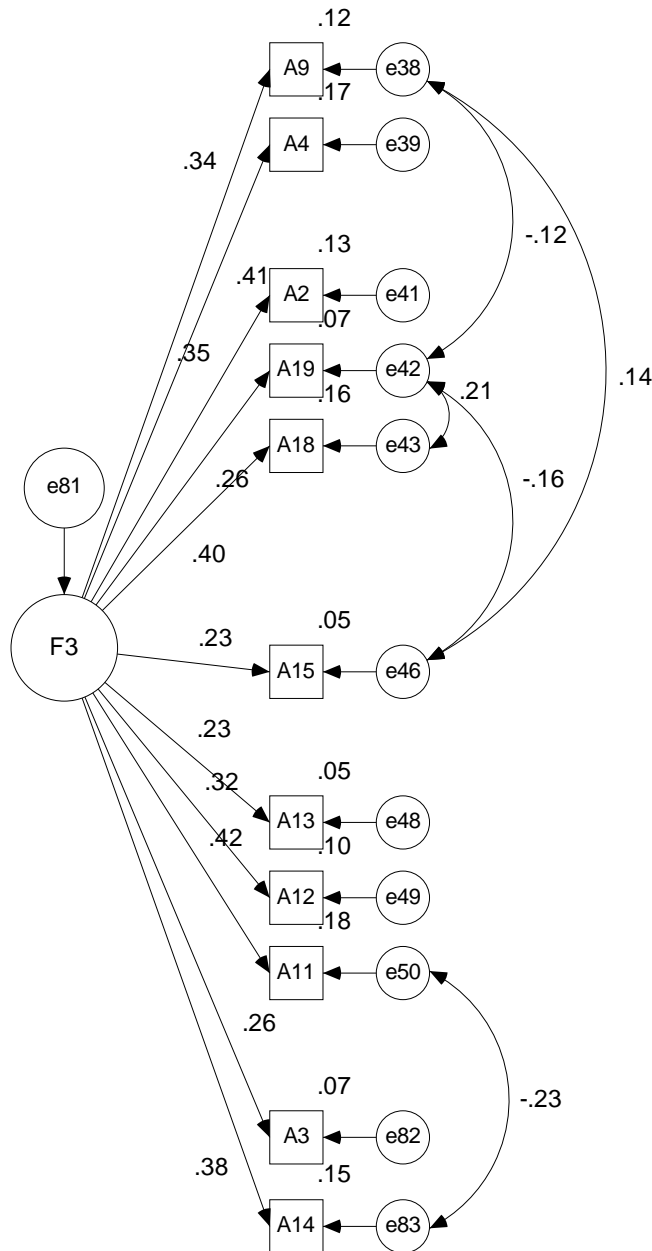


Figure 8: Items loading on Factor 3, showing standardised regression weights

Regression weights of six items in this model were significant to $p < 0.01$; five to $p < 0.05$. Goodness of fit was confirmed with a CFI of 1.000, TLI of 1.168 and RMSEA of 0.000. Very few covariances between items were observed.

The fourth factor of nine out of 11 items and achieved a statistic of $\chi^2(df26)=16.860$; $p=.913$. Only moderate covariance was observed between two items on this factor. Regression weights on five items were significant at $p < 0.01$; four items significant at $p < 0.05$. Goodness of fit statistics of CFI at 1.000, TLI at 1.204 and RMSEA at 0.000 confirmed the model, which is seen in Figure 9 overleaf.

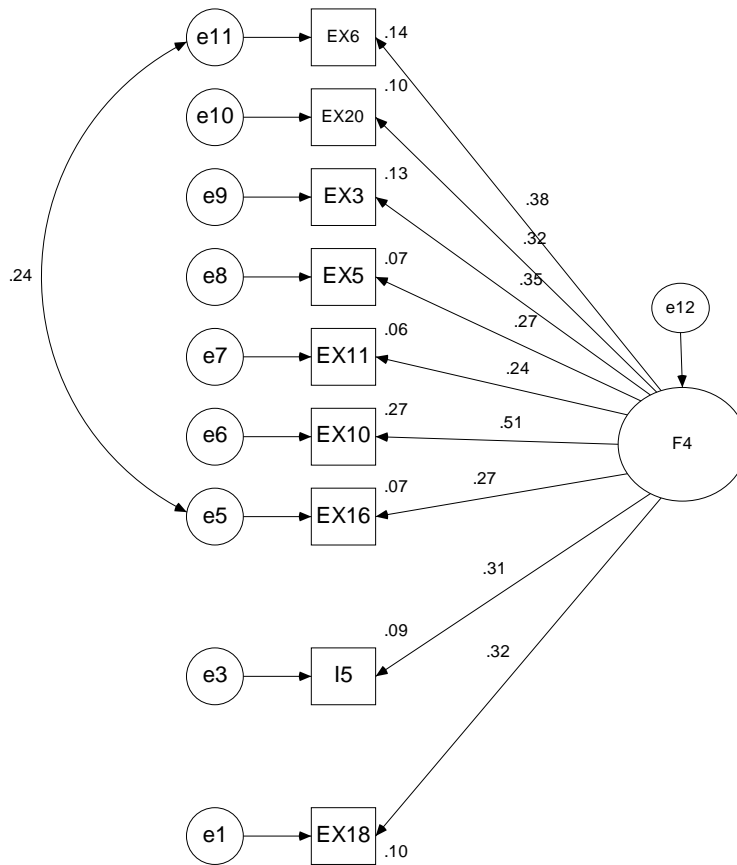


Figure 9: Items loading on Factor 4, showing standardised regression weights

The fifth factor retained only five of the initial eight items with a statistic of $\chi^2(df4)=4.849$; $p=.303$ (see Figure 10).

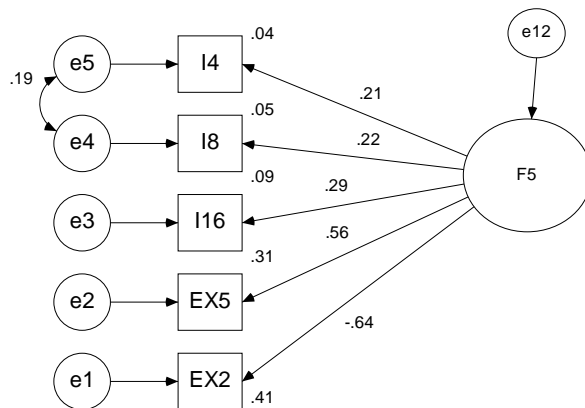


Figure 10: Items loading on Factor 5, showing standardised regression weights

Regression weights of three items was significant to $p<0.01$; the remaining two significant to $p<0.05$. CFI at .983 was good and TLI of .958 and RMSEA of 0.032 are within acceptable limits.

The sixth factor retained four out of eight factors to achieve a successful model: $\chi^2(df2)=1.321$, $p=.517$ (see Figure 11 below).

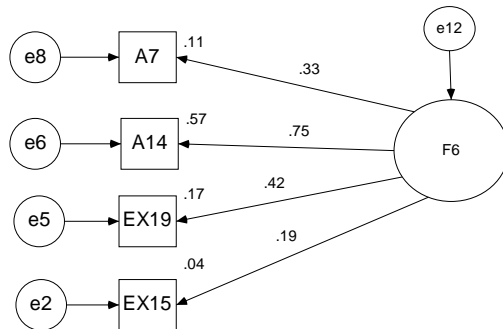


Figure 11: Items loading on Factor 6, showing standardised regression weights

The regression weight of three out of four items was significant at $p<0.05$; one item at $p<0.01$. Goodness of fit indices CFI at 1.000, TLI at 1.060 and RMSEA at 0.000 provide confirmation of an acceptable model.

The final seventh factor retained seven out of eight items for a satisfactory model: $\chi^2(df13)=6.450$; $p=.928$ (see Figure 12).

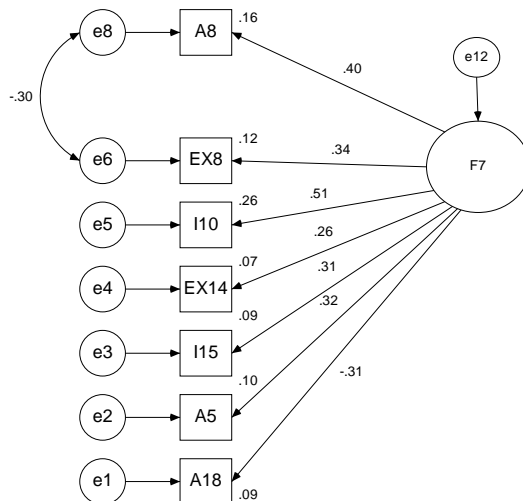


Figure 12: Items loading on Factor 7 showing standardised regression weights

All regression weights on the model were significant to $p<0.01$ apart from one at $p<0.05$. CFI at 1.000, TLI at 1.259 and RMSEA at 0.000 confirmed the model as acceptable.

Using the items with significant regression weights alone, seven interpretable factors of emotional competence were established (Table 20) and appear in order of highest regression weights and showing results of Cronbach's alpha on each scale.

FACTOR 1 Emotional Intensity Alpha = .7988	IECA9	Sometimes I cry when I watch TV
	EEQ4	I show that I like someone by hugging them
	EEQ7	I cry at sad films
	EEQ17	If I think really sad thoughts I end up crying
	IECA13	Some songs make me feel so sad I feel like crying
	IECA6	Seeing a boy crying makes me feel like crying
	IECA19	Seeing a girl who is crying makes me feel like crying
	EEQ1	I tell people I love them
	EEQ16	I laugh so loud that my eyes water
	EEQ2	I touch friends when we are talking
	EEQ18	If I really like something I tell everyone
	EEQ15	When I like someone they know it
FACTOR 2 Empathic Sensitivity Alpha = .7621	IECA1	It makes me feel sad to see a girl with no-one to play with
	IECA14	I get upset when I see a boy being hurt
	IECA7	I get upset when I see a girl getting hurt
	IECA19	Seeing a girl who is crying makes me feel like crying
	IECA13	Some songs make me feel so sad I feel like crying
	IECA11	I get upset when I see an animal getting hurt
	IECA12	It makes me sad to see a boy who can't find anyone to play with.
	IECA6	Seeing a boy crying makes me feel like crying
	EEQ13	If I've done something wrong I say I'm sorry.
	IECA3	I like to watch others open presents even if I don't get one myself
FACTOR 3 Perceptual Skills Alpha = .6929	APT11	I can tell if someone is angry by the sound of their voice
	APT4	I know when someone is cross with me by looking at them
	APT18	I can tell when other children are unfriendly or just shy
	APT14	I can tell if other kids want to play with me
	APT2	If I am playing and a friend looks angry, I can tell if they are being serious or playing too
	APT9	If I'm talking to someone and they don't understand I can tell by the look on their face.
	APT12	When someone smiles I know if they really feel happy
	APT19	I'm pretty good knowing what I'm feeling
	APT3	I can tell if a good friend is happy or unhappy.
	APT13	If someone falls over, I can tell by their face if they are really hurt
	APT15	If I'm telling a story I can tell if someone else is bored
FACTOR 4 Emotional Reactivity Alpha = .6024	EEQ10	I laugh at lots of things
	EEQ6	My laugh is really loud
	EEQ3	Just thinking about something funny can make me laugh out loud
	EEQ20	I cheer loudly when my team is winning at sports day
	EEQ18	If I really like something I tell everyone
	IECA5	Even when I don't know why someone is laughing, I laugh too.
	EEQ16	I laugh so loud that my eyes water
	EEQ5	When I am angry my friends can tell.
	EEQ11	When I'm given a present I get really excited
FACTOR 5 Empathic Attitudes Alpha = .4709	EEQ2	I (don't) touch friends when we are talking
	EEQ5	When I am angry my friends can tell.
	IECA16	It's silly to treat dogs and cats as if they had feelings like people
	IECA8	Girls who cry when they are happy are silly
	IECA4	Boys who cry because they are happy are silly
FACTOR 6 Social Confidence Alpha = .4962	APT7	I can tell whether music is supposed to be happy, sad or angry.
	APT14	I can tell if other kids want to play with me
	EEQ19	My friends think I'm fun to be with
	EEQ15	When I like someone they know it
FACTOR 7 Emotional Confidence Alpha = .4565	IECA10	It's hard for me to see why someone else gets upset
	APT8	I don't often know when someone is about to cry
	EEQ8	If someone makes me angry I try to hide it
	APT5	When I feel bad, I don't know who or what is upsetting me
	IECA15	Grown-ups sometimes cry even when they have nothing to be sad about.
	APT18	I can (not) tell when other children are unfriendly or just shy
	EEQ14	I don't know what to do when someone does something nice for me

Table 20: Items loading on EC scale showing factors and reliability statistics.

This scale of Emotional Competence comprised 48 of the original items from the three questionnaires. Factors were labelled as appropriate to items; factors five and seven reflect a

lack of empathy and confidence in emotional matters; the other five factors reflect a strong emotional awareness and sensitivity. These seven factors were labelled Emotional Intensity, Empathic Sensitivity, Perceptual Skills, Emotional Reactivity, Empathic Attitudes, Social Confidence and Emotional Confidence. These were considered as Affective Skills and Differences within the theoretical model of Emotional Competence (EC) proposed in Chapter 1. Thirteen items not related to the model (Table 21 below) may be related to other concepts (see Discussion) and will be referred to as ‘Other Influences’.

Other Influences: Non Loading Items	APT1	When I'm feeling fed up my friends do things to cheer me up
	APT6	I know which of my friends are better at pretending than I am
	APT10	When someone tells me something I can tell if they are lying or telling the truth
	APT16	When a grown-up tells me off for being naughty I can tell if they are really angry with me
	APT17	When I am upset I know how I am feeling inside
	IECA2	People who kiss and hug in public are silly
	IECA17	I get mad when I see a classmate pretending to need help from the teacher all the time
	IECA18	Kids who have no friends probably don't want any
	IECA20	I am able to eat all my crisps even when I see someone looking at me wanting one
	IECA21	I think it is funny that some people cry during a sad movie or while reading a sad book.
	IECA22	I don't feel upset when I see a classmate being punished by a teacher for not obeying school rules
	EEQ9	People can tell from my face what I'm feeling
	EEQ12	If someone shows me up I get angry and shout

Table 21: Items from the three questionnaires not reliably linked to EC.

SEM was used to ascertain whether any of these 13 items from the three questionnaires which failed to load reliably against Emotional Competence could be considered representative of a separate cohesive entity which had contributed to scores on the three questionnaires.

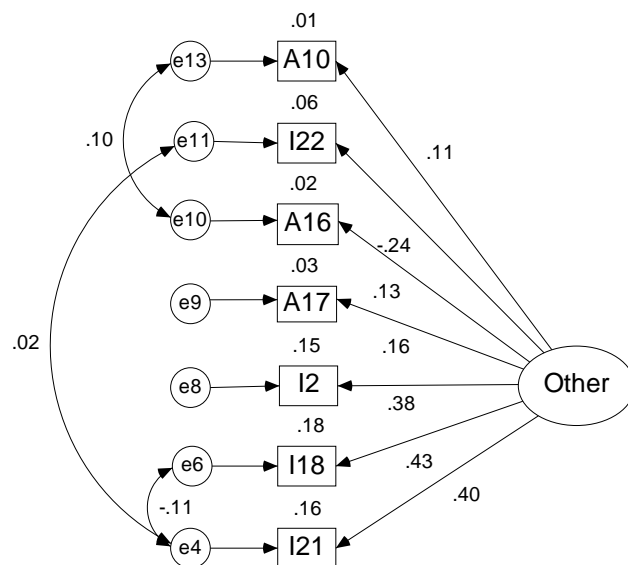


Figure 13: Model of non-loading items

The model (Figure 13 above) achieved a satisfactory fit by retaining seven items: χ^2 (df11)= 9.920, $p = .538$. However, although goodness of fit indices CFI at 1.000, TLI at 1.189 and

RMSEA at 0.000 confirmed the model, none of the regression weights were significant, suggesting that although the model is viable, it is unlikely to interpretable. This was confirmed by examining the items retained (see table 21 for details of items) for which no adequate interpretation could be found.

Non-loading items from each questionnaire were also examined separately. The five non-loading items from the APT-C produced a satisfactory model: $\chi^2(df5)=3.146$; $p=.678$ (see Figure 14).

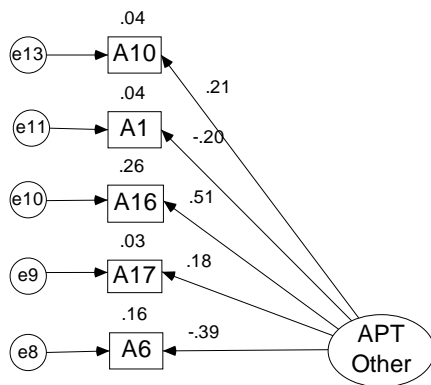


Figure 14: Non-loading APT items predicting unknown influence

CFI at 1.000, TLI at 1.375 and RMSEA at 0.000 confirmed the model as acceptable. However, none of the regression weights on the model were significant. The six non-loading items from the IECA also produced a satisfactory model: $\chi^2(df8)=3.975$; $p=.859$ (see Figure 14).

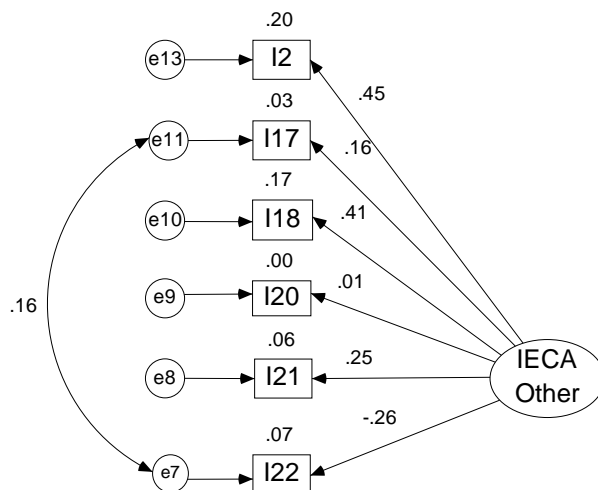


Figure 15: IECA items predicting unknown influence

CFI at 1.000, TLI at 1.748 and RMSEA at 0.000 confirmed the model as acceptable. However, none of the regression weights on the model were significant. Although the chi-square figure benefitted from the removal of Item 20, this did not result in any significant regression weights for the model. The two non-loading items for the EEQ-C did not produce an interpretable model.

3.3.5.5. Predictive value of Affective Skills and Differences

Linear regression was used to identify predictive relationships between the seven Affective Skills and Differences and three Key Competencies. Table 22 below shows the strength of linear relationship between each of the seven Affective Skills and the main Key Competencies. Age and sex of participant were included but showed non-significant relationships in all cases.

Key Competencies	Affective Skills and Difference	t value	Significance Level
Affective Perception: Self and Other Oriented	Perceptual Skills	45.47	p<0.01
	Social Confidence	4.16	p<0.01
	Empathic Sensitivity	2.23	p<0.05
	Emotional Intensity	-2.12	p<0.05
	Emotional Confidence	6.65	p<0.01
Empathy: Knowledge and Quality	Empathic Sensitivity	23.59	p<0.01
	Emotional Intensity	6.66	p<0.01
	Empathic Attitudes	16.52	p<0.01
	Emotional Confidence	9.18	p<0.01
	Emotional Reactivity	-3.68	p<0.01
Emotional Expressivity and Regulation	Emotional Intensity	11.75	p<0.01
	Emotional Reactivity	17.79	p<0.01
	Social Confidence	8.02	p<0.01
	Emotional Confidence	3.75	p<0.01

Table 22: Links between Key Competencies and Affective Skills and Differences

Two Affective Skills negatively correlated with Key Competencies: low Emotional Reactivity was linked to strong Empathy and low Emotional Intensity to good Affective Perception. Strictly confirmatory path analysis was used to confirm the relationships presented in Table 21 (please see Appendix 1.11). In addition, the two non-loading EEQ-C items correlated with Emotional Expressivity ($t=4.633$, $p<0.01$), as did the six non-loading IECA items ($t=14.189$, $p<0.01$) and the five non-loading APT-C items ($t=9.980$, $p<0.01$), as indicated in Figures 14 and 15.

3.3.6. Emotional Competence in TD Children

Two possible scales for Emotional Competence were available: 1) a 61 item total index, achieving reliability with Cronbach's alpha of .74, without the loss of any items (possible gains of under .03 from removing two items or alpha of .80 retaining 52 items), or 2) the 48 item factorised index, also achieving reliability with Cronbach's alpha of .74 (possible gains of .04 by removing three items from Factor 7, or alpha of .80 by retaining 41 items). It was decided to use the full 48 item index as an Emotional Competence score as .74 is within the minimum of .7 required (see Method, Chapter 3.3.3.2).

Three cut-points for scores on the 48 item EC index were established to create groups of high, medium and low scoring. Using EC group as a factor, a one-way ANOVA was used to investigate whether high, medium or low EC would predict the school year of the child. The higher the EC group, the older the child (as measured by Year at School) [$F(2,285)=5.453$, $p<0.01$]. Membership of EC group did not predict the actual age of the child ($p=0.071$); Year at School has consistently proved a better measure of maturity in this sample; post hoc analysis with Tukey revealed children with Low EC are in lower years at school than those with Medium EC (mean difference $-.3902$, $p<0.05$) or High EC (mean difference $-.5047$, $p<0.01$).

Looking at boys alone, a significant effect was found for EC group in both Year [$F(2,163)=6.465$, $p<0.01$], with Low EC children more likely to be in younger years than Medium (mean difference $-.5751$, $p<0.01$) or High EC children (mean difference $-.6510$, $p<0.01$) and in Age [$F(2,163)=4.846$, $p<0.01$], where Low EC children are likely to be younger in age than Medium EC children (mean difference $-.6123$, $p<0.05$). For girls only, no effect of EC group was found on either Year at School ($p=.538$) or Age ($p=.516$), indicating that it is only related to age in the male population.

Looking at scores for the 48 item EC scale, there was a significant positive correlation with Year at School ($r^2=.199$, $p<0.01$) and this relationship was unchanged when the influence of sex of participant was partialled out ($r^2=.217$, $p<0.01$) and when Ethnicity was partialled out ($r^2=.197$, $p<0.01$). EC also positively correlated with Age ($r^2=.159$, $p<0.05$), including when sex of participant was controlled for ($r^2=.181$, $p<0.05$). EC Score in boys was positively correlated with Year at School ($[F(1,164)=14.085$, $p<0.001]$). No correlation was observed between EC Score and Year at School in girls only ($p=.299$).

3.4. DESIGN CONSIDERATIONS: RELIABILITY OF THE TEST

It was hypothesised that the three questionnaires, as based on successful adult measures, would achieve reliable factor solutions; to a large extent this was confirmed. A two-factor solution was obtained for AP: inter- and intra-personal perception, and for EM: cognitive and affective. A three-factor solution was obtained for EE: intimate, overt (gregarious) and covert (a tendency to hide feelings, particularly negative feelings). Although Gilbert's (2001) adult perception scale delivered a single-factor solution, the two factors for this child version, both with reliability of around .7, were theoretically coherent. The purpose of this index was to elicit a complex manifestation of the development of self in middle childhood, where peer relationships begin to supersede parental influence as a yard-stick for self-appraisal. How well the child considers they understand their own feelings is equally important to the area of emotional perception as their understanding of the affect and emotional signals of others.

Bryant did not factorise the IECA but looked at reliability for different age grades. This was not done in the current study, and the two factor solution achieved showed a good internal reliability; however a number of items were ambiguous or difficult for a young child to comprehend, and small moderations were made for Study 4, including the modification of the wide nine-point Likert scale (see Appendix 5.1) into five points. The Expressivity index achieved an acceptable internal reliability for two of three factors; the third (Covert expressivity) was less coherent and would benefit from some revision. For total Emotional Competence, a seven factor solution was obtained with good to low internal reliability; however all scales were confirmed with structural equation modelling.

Discussion around the findings in this study, including an assessment of the theoretical model, can be found in Chapter 9.1.

CHAPTER 4: STUDY OF EMOTION APPRAISAL: RATIONALE AND METHODOLOGY

4.1. RATIONALE FOR STUDY OF EMOTION APPRAISAL

Study 1 showed SEBD children in mainstream schooling just as competent in understanding their own emotions and attributing emotion to others as TD peers. However, it is clear from both previous research and anecdotal evidence that children with behavioural problems are likely to be less adept at correctly assessing the intent and motivation of others (Crick et al., 2002), and may in fact exhibit a hostile bias in the interpretation of others (Poulin & Boivin, 2000). There is also evidence that such children are more likely to view others as having intentionality towards themselves than are typically developing peers (de Castro et al., 2005). If a child regularly evaluates other children with not only an internal mood or affect, but as having behavioural intent towards someone, this suggests they have a reactionary view of others. It is important to investigate this aspect of emotional appraisal in children with emotional and behavioural problems. Perceived emotional competence (as investigated in Study 1) can then be compared to the actual ability of the child to assess emotion in others. For this reason it was felt that any study of emotion appraisal in this thesis should include aspects of intentionality in appraisal options.

In order to do this, an appropriate methodology for assessing the patterns and evaluations of a typical sample of children must first be established. The author decided to investigate two areas of emotional appraisal as Studies 2a and 2b: a) appraisal of emotion in a representation of another child (a pre-cognitive response to another child, such as one would meet in a playground encounter) and b) appraisal of emotional change (cognitive appraisal of change of affect measuring appropriateness and maturity of response). Investigation employed two response methods: forced choice alternatives and open answer questions.

It was decided to investigate these two aspects of emotional appraisal via one single administration, using one activity incorporating two separate sets of visual and verbal prompts. Ethical Approval, participants and procedure for these two studies were therefore the same and are described in the methodology section of this chapter. Thereafter the study of emotional appraisal will be reported in two chapters:

Study 2a (Chapter 5): Appraisal of affect in a series of whole body pictorial representations of other children using forced-choice alternatives.

Study 2b (Chapter 6): Appraisal of discrete facial expressions of emotion and reasons for emotional change using pictorial faces of children and open questions.

The intention of the methodology of the first study was to access the preconscious, signal-response tendency of the child (please see Chapter 5.1 for details of this theoretical standpoint). The intention of the methodology of the second study was to access cognitive reasoning and mentalising skills of the child regarding emotional issues. Both these aspects of emotional appraisal were compared with perceived emotional competence in Study 4 with a population of children with severe behavioural difficulties.

4.1.2. Overall Aims of Studies 2a and 2b

The broad purpose of these studies on emotion appraisal was to identify a pattern of responses of typically developing children in mainstream schooling to affect displayed in two areas of media: 1) Ambiguous body postures depicting children of different sexes and broad ethnic groups (appraisal of affect) and 2) Facial emotion in children of different sexes and ethnic groups, including the ability to provide mental state reasons for emotional change.

Study 2a examined choice of affect and whether or not affect chosen for the postures was intentional in nature; that is having an action potential. Tendencies for each posture to receive either positive or negative appraisals of affect were noted. Study 2b examined the ability of children in primary mainstream schooling to interpret basic emotions of happiness, sadness and anger in pictorial faces. In addition the child's reason for why affect may change between two emotions was explored in terms of cognitive development; that is maturity and use of mental state terms in responses.

The patterns of response in typically developing children formed the basis upon which the comparison with children with severe behavioural problems was made.

4.2. METHODOLOGY FOR STUDY OF EMOTION APPRAISAL

In order to examine emotion appraisal in Studies 2a and 2b, a new pictorial activity (named the Picture Pack) was developed using ambiguous stimuli. By eliciting choices from children concerning ambiguous pictorial stimuli it was intended that the child's own emotional representations and internal bias (if any) would become apparent (see 4.1). The premise for this is that, where there is insufficient evidence to make an informed choice, a child must utilise his or her own internal model of self and others to form a judgement and make a choice.

4.2.1. Design and Preparation of Materials for Two Studies

Material for the studies took the form of a printed booklet of six sheets which could be administered either to a child individually or in a class or group setting. The booklet, named the 'Picture Pack', contained a series of visual stimuli in two parts: Body postures and Facial Emotions. All picture stimuli used in these studies were drawn by the author. Study 2a looked at children's appraisals of the main and most likely emotional or mood state for a series of 16 ambiguous fully body pictorial representations; a two-by-two-by-four design. Study 2b looked at children's abilities to assess the emotion appearing in two paired pictorial representations of facial expression and to suggest a reason why the emotion, if it had altered, had changed. Factored into both studies were aspects of sex and ethnicity: this would be compared with the sex and ethnicity of the participants, exploring any interaction between sex of participant and sex of stimuli, and equivalent aspects of ethnicity.

It was decided to use drawings for the purpose of this activity instead of traditionally standardised tests for two reasons. Firstly, the author wanted the child to see each presentation as a possible peer, so it would not have been appropriate to use adult stimuli, which most tests use. Secondly, the author could not find any previously designed materials which fulfilled the purpose of this exercise: to present children with whole body presentations of ambiguous postures with similarly neutral facial expressions and vary these for sex and ethnicity.

4.2.2. Participants

The population for Studies 2a and 2b comprised 264 Primary School children aged between seven and eleven from four mainstream schools, with a mean age of 8.77 and standard deviation of 1.34. Of these 133 were boys and 129 girls (two children did not declare gender). All children were attending mainstream schools in and around London: Enfield, Edmonton, Essex and Barnet.

4.2.2.1. Ethical Issues

As with any study, ethical considerations regarding privacy, information and risk to the participant were considered. All materials which were to be presented to parents and children were agreed with the head teachers of each school before being made available. One head teacher requested that a sample picture be presented in the parent information leaflet to show the parents what sort of activity the children were to take part in. Care was taken not to compromise the study by priming the child with too much information prior to the activity, but it was agreed to insert a small picture. This can be seen in Appendix 2.2 as part of the consent materials for Studies 2a and 2b.

The author met with staff of the schools involved prior to the testing and explained the nature of the study and answered any questions. Teaching staff were given sufficient information to be able to themselves answer any questions the children might have, particularly in the case of the staff who were to be administering the study. Full written notes were produced for teachers with details of demographic information required for each participant. In addition a brief handout explaining emotional literacy and why it was important was provided and discussed with staff (see Appendix 2.6).

4.2.3. Procedure

Schools were offered a choice for the actual administration of the test; three chose to administer themselves within classrooms, excluding children whose parents had not given consent. One further school elected for the author to administer the test on school premises with the help of the headmistress and another member of staff. On this occasion children from all classes were gathered in the school hall for a joint administration. All were group administrations. Students sat in groups within a classroom or school dining hall and were provided with the paper Packs and pencil/pens for completion. Children worked individually and in silence unless asking for

assistance. At least two adults were in the room for each administration – one to organise and lead the activity and a second to help answer queries or assist children who were having difficulty reading the Picture Pack. In the case of the school dining hall administration there were four adults in the room.

The procedure followed for the Picture Pack administrations came from the laminated Class Administration Instructions which were standardised instructions to be used at every administration (see Appendix 2.7). The instructions introduced the Pack to the children, encouraged them to look at the pages and explained the procedure. Class teachers were encouraged to read through these standardised instructions and answer any questions children may have only after consent had been obtained from each child. The front page of the Picture Pack required the child to give their age, sex, year at school and class and date of birth, if known (see Appendix 2.8). A small area on the front cover was to be filled in by the teacher when the Picture Packs were collected. This provided information about the child's status and ethnicity. Status was indicated by the addition of an 'N' for typically developing children with no referrals, an 'S' for children referred for Special Needs, and a 'B' for children referred for Behavioural Problems. This enabled the Typically Developing sample to be isolated for the purpose of providing a baseline for the test. Ethnicity was indicated by the addition of 'W' for white, 'A' for African-Caribbean, 'T' for Turkish, 'M' for Mediterranean and 'O' for Other. The inclusion of class and date of birth meant that on the occasions where the status and ethnicity details were for whatever reason not entered at the time of testing the child could be identified by the class teacher from the school register in order to fill in these fields. Following data collection Ethnic groups were reclassified into four groups, combining the Turkish and Mediterranean categories, due to the small numbers of participants in these classes.

No specific debriefing took place after these administrations as it was not deemed necessary (for ethical approval see Appendix 2.1) and the children were not doing anything which was outside of general curriculum style activities. They were all asked to complete a basic feedback task at the end of the Picture Pack which required a simple response to smiley faces asking if they had enjoyed the activity, were not sure, or had not liked it. Children in classroom administrations were encouraged to say what they thought of the activity and these comments were passed back to the author by the class teacher by word of mouth. When all participants had finished and the details on the front cover were completed the Picture Packs and consent forms were collected from the schools by the author, at which point staff involved were able to pass on any comments from the children about the activity.

4.3. SAMPLE STATISTICS AND FEEDBACK FOR STUDIES 2A AND 2B

These studies used pictorial media with a series of forced choice response alternatives (Study 2a) and free choice responses (Study 2b). Several methods of investigation were appropriate for the picture pack and will be dealt with as follows:

1. Sample statistics, including age, sex, ethnicity and school status and feedback on task (reported in this chapter).
2. Frequency of choice using all eight response categories for the four different postures and inferential appraisal of the 16 body presentations including sex and ethnicity aspects using a six-point categorical scale. (reported in Chapter 5; Study 2a)
3. Appraisal of appropriate choice of emotion for the four facial expressions and appraisal of quality of reasons for emotional change (reported in Chapter 6; Study 2b).
4. Analysis of above scores with respect to status, ethnicity and age of participant.

4.3.1. Sample Statistics

An incidental sample of 18 SEN children within the population of 264 children was obtained (see Table 23) which could provide a possible comparative analysis with a normative sample. However, a comparison could not be made with only three SEBD children. The sample was reasonably balanced male to female and the main population of children either white or 'other', which includes unspecified ethnic groups and undeclared ethnicity.

Sex		Ethnic Group					TOTAL
		White	Afro-Caribbean	Turkish	Mediterranean	Other	
Male	TD	88	2	3	5	24	122
	SEN	7	-	-	-	2	9
	SEBD	2	-	-	-	-	2
	Total	97	2	3	5	26	133
Female	TD	87	5	6	4	17	119
	SEN	6	-	-	1	2	9
	SEBD	1	-	-	-	-	1
	Total	94	5	6	5	19	129

Table 23: Sample statistics for Study 2 – sex, status and ethnicity

Single ethnic groups were too small for comparison and were combined a 'non-white' category.

No children were registered SEBD in year three (see Table 24). It was decided to restrict analysis to typically developing children for this Study. This gave a sample size of 243 children. Of these 122 were girls, 119 boys (two undeclared gender).

Sex		SCHOOL YEAR				TOTAL
		3	4	5	6	
Male	TD	36	24	24	38	122
	SEN	4	3	-	2	9
	BESD	-	1	1	-	2
	Total	40	28	25	40	133
Female	TD	37	18	30	34	119
	SEN	-	2	5	2	9
	BESD	-	-	-	1	1
	Total	37	20	35	37	129

Table 24: Sample sizes by sex, status and year at school

The mean age of the sample was 8.76 years, standard deviation 1.35. Of these 89% were between seven and 10 years old. Four children in the sample were under seven years at the time of the test, which would normally have placed them outside the age range for the study (see Appendix 2.9). However, all these children were typically developing with no learning difficulties and part of the Year three age-group. As the Picture Pack did not require any complex manipulation and these four children were considered to be of the same academic standard as their peers, they were retained in the study. Analysis for age was conducted mainly using year at school. Of the four year groups 73 children were attending year three (mean age 7.27, SD 0.55); 42 children year four (mean age 8.10, SD 0.53); 54 children year five (mean age 9.30, SD 0.50) and 72 children year six (mean age 10.31, SD 0.49).

4.3.2. Feedback on Activity

Encouragingly, 67% of children enjoyed the activity. Only 11 children out of 264 (4%) who responded to the question said they did not like the task. Twelve children declined to give feedback on the activity and 28% were not sure. There were no significant differences in feedback between any categories of participant; sex, status, ethnicity or age.

CHAPTER 5: STUDY 2A: APPRAISAL OF AFFECT IN OTHERS USING WHOLE BODY PRESENTATIONS

5.1. INTRODUCTION

5.1.1: Investigation of bias in appraisal of affect

Most assessments of hostile appraisal bias in children have used cognitive methods; story based scenarios or vignettes which ask ‘what if’ questions with either free or fixed choice alternatives (Dodge et al., 2002; Lochman & Dodge, 1994; Hillis, 2003). This can have two problems: firstly the possibility of a social desirability effect: the child giving what they think would be an acceptable answer to the proposition, and secondly a conscious cognitive response. Story based scenarios encourage the child to think about what their response should or would be to a situational prompt. This accesses the child’s cognitive process and can provide an insight into how the child thinks they would respond in a real life scenario. The disadvantage of this method is that such responses cannot be spontaneous (as they are consciously obtained) and could well bear little relation to how the child would respond to a real-time incident where they are not encouraged to stop and think about what their response would be, but act more on a pre-conscious impulse. This premise has been explored using a comparison between responses to emotional slides and corresponding vignettes where a good level of agreement was reached between the two measures (Robinson & Clore, 2001). The authors suggest this convergence in methods of appraising emotional response exonerates to some extent the use of vignette methodologies. However, both methodologies in this study employed a process whereby participants were aware they were rating emotional stimuli.

Cognitive processes are only part of the mechanism by which we respond to emotive content in the visual scene; cognitive systems of causal attributions, appraisals, judgements and response judgements are activated along with non-cognitive emotion-activating systems: neural, sensorimotor and motivational (Izard, 1993). Appraisal of others includes deliberate (controlled) and automatic responses. Deliberate or controlled responses to emotional stimuli are attentional, easily altered and can even be reversed, and are dependent upon load; in other words the facility or opportunity to devote cognitive resources. Automatic responses run in parallel and are long-term patterns of response which are not affected by cognitive load. By their nature they are

difficult to suppress, alter, or ignore (Shiffrin & Schneider, 1977). These responses could be referred to as pre-cognitive, or implicit, emotional responses.

In most real-time incidents where such appraisal and decision making would be important the child's response would be spontaneous (a spontaneous response to signal of the other) in other words, to a large extent a signal-response judgement. This judgement is more preconscious than conscious and although it may involve a conscious cognitive reappraisal of the situation, the immediate appraisal will be based on inward signal-response biases. As regards children assessed to have chronic behavioural problems, one of the presenting features is the tendency of the child to make an uninformed, spontaneous response to the emotive signal of the other without cognitively reassessing the situation: classically signal-response behaviour (Shiffrin, 1977).

5.1.2. Measuring appraisal of affect using whole body presentations

In the first section of the study children would be asked to appraise the affect (mood state) of a series of pictures of children with ambiguous body postures in order to identify any bias in attribution of emotion. They would also be asked to rate their confidence in deciding the appropriate emotion (perceived emotional perception). Stimuli of both mixed sex and ethnicity would be used in order to identify any differentiation in these areas. The aim in this method of presentation of stimuli was to suggest to the child that (in the absence of any accompanying scenario) something in the visual aspect of the pictorial stimuli would provide the key as to the affect of the other. The rationale for this choice of method is twofold. Firstly, if the child thinks the cues to correctly assessing affect lie in the stimuli itself they are less likely to think their personal opinion is being required or be motivated to provide socially desirable responses. Secondly, asking for confidence in choice would further encourage the child to think that it was their ability to assess affect in visual stimuli that was being investigated rather than any bias of appraisal on their part. This methodology is more likely to access the child's pre-cognitive emotional response than would asking them to interpret a story scenario where an equitable outcome would be likely to be considered before making a choice.

5.2. METHOD

5.2.1. Choice of Postures

The first section of the activity (which was labelled the ‘Picture Pack’ [PP]) comprised a series of 16 pictures displayed across four pages and mixed by body posture, sex and skin colour. Each male/female white/black picture exhibited the same four ambiguous body postures. It was decided that two of the postures should be casual and inoffensive (a child with one hand in a pocket, a child with two hands folded to the front), where it was anticipated most children would choose a neutral affect state. Standing with one arm by the side and one hand in a pocket can be seen as an indication of confidence although both hands in pockets would indicate defensiveness or unease (Pease & Pease, 2003) but should not be taken as confrontational or unfriendly. In the same way, hands folded over the crotch area could give the appearance of uncertainty or defensiveness, a sense of vulnerability (an unconscious protective motion, particularly in males) (Morris, 2002) and is described as ‘holding hands with oneself’, often employed by someone about to make a speech who is a little anxious (Pease & Pease, 2003). A third pose (a side view with the child’s head slightly down, shoulders more hunched with the arms folded in front of chest) was a closed posture which was chosen as it could be interpreted variably. According to James (1932; cited by Mehrabian, 1968) a dejected posture with bowed head and slumped shoulders serves as an indication of depressed affect. The closed aspect of the arms folded in front of the chest could also indicate a defensive or confrontational affect (Pease & Pease, 2003), giving an overall posture that could be interpreted variously.

A fourth posture was chosen to be a more open but provocative posture (child is standing legs askance with both hands on the hips), a stance otherwise known as ‘arms akimbo’ (Mehrabian, 1969) which, if accompanied by an angry or scowling face, is a body posture variously seen as an indication of confrontation, indicating aggression (Pease & Pease, 2003) impatience, hostility or contempt (Givens, 2007; Morris, 2002). ‘Arms Akimbo’ originally referred to the hands on hips, elbows bent sharply outwards. More recently the posture ‘akimbo’, or ‘hands on hips’, has included the aspect of legs slightly splayed, a posture that implies defiance, aggressiveness or confidence. As an alternative interpretation, ‘Hands on hips’ also carries a suggestion of a body prepared to ‘take action’, either in terms of an event, an activity or an assignment (Givens, 2007), providing an aspect of action potential to the posture. The posture drawn here has the legs straight but apart, a position which is known as ‘legs akimbo’ or ‘crotch spread’ (popularly portrayed by cowboys in Westerns), which is a signal of dominance and confidence which could be confrontational (Pease & Pease, 2003). In addition, one foot in the first two postures is pointed outwards towards the viewer. This is generally accepted as a sign of interest in the

viewer (Pease & Pease, 2003) and could be interpreted in this context as a sign of ‘friendliness’. All four postures on the presentation page can be seen in Figure 17.

5.2.2. Ambiguity Considerations

All pictures for the PP were drawn by the author. The inspiration for the choice of postures came from various sources, including commercial materials for helping children to understand body language. However, in commercial products all ‘postured’ children also had facial expressions which indicated that the child was feeling a certain emotion; for example the ‘hands on hips’ posture, when seen, would have a scowling face, a hands in pockets a smiling face. A scowling or smiling face is a clear indication of emotional state without any other reference point being necessary and it was considered for this study that the use of any such facial expressions would be leading the participant towards ‘appropriate’ choices. The facial expressions on the stimuli for Study 2 were therefore drawn to be bland and designed to be totally ambiguous. They were the same within each set of four pictures, for example the black girl had the same expression for all four postures. Facial expressions are the first indication and the most conscious mechanism for deciding the emotional state, attitude and intent of the other. Body language, in comparison, is rarely considered consciously by either the presenter or the viewer. They are evolutionary based signals, akin to animal signals, which we unconsciously use to manipulate the presentation of self to the other (Morris, 2002) and are interpreted without full cognitive awareness.

The ambiguity of stimuli for the first part of this test was therefore crucial. The concept of the other must be influenced by the concept of self (Hala, 1997) therefore if a stimulus is ambiguous, characteristics of the self will be employed in order to make a judgement. If in addition the facial expressions on the stimuli appear to differ but do not, the child must rely on their own internal patterns in a process of transference (unconscious redirection of internal feelings, desires or emotions toward an outside object) in order to make a decision. This study is interested in those internal patterns which could only be accessed with the use of ambiguous stimuli. The facial expression, therefore, must be as neutral and indeterminate as possible for the stimuli to elicit the child’s own personal response patterns. If the body posture stimuli had differing facial expressions it would have been all too easy for the child to ascertain the expected response, for example smiling = happy, scowling = grumpy, and so forth. There would be room for interpretation only as regards quantity of affect, or arousal state – for example a scowling face could be interpreted as grumpy, angry or ‘like fighting’ dependent upon the degree of arousal considered appropriate by the assessor, but could not be considered

to be indicative of ‘friendly’ or ‘like playing’. The use suggestive body postures and ambiguous facial expression therefore allows the viewer to place a personal interpretation on the other, rather than a cognitive recognition of an overt cue.

The author also decided against leaving the faces blank on the body stimuli for two reasons. A blank face is 1) unnatural and does not appear in real life and 2) a signal that some other form of judgement must be used in discerning the emotional state or intent of the other, since facial properties are normally and automatically used to make such judgements. This would also have required the child to make a considered cognitive judgement rather than a spontaneous response, which was the aim. The author drew the first body posture, the white male with hands in pockets, with a neutral, calm face. A light box was used to adjust sex and ethnicity using the original template. Two main features were altered to indicate sex: the type of t-shirt and the hair, along with slight adjustments to the body proportions, with shoulders slightly more sloped and hips slightly wider in the female presentations. Figure 16 shows the full set of stimuli for ‘Hands in Pockets’.

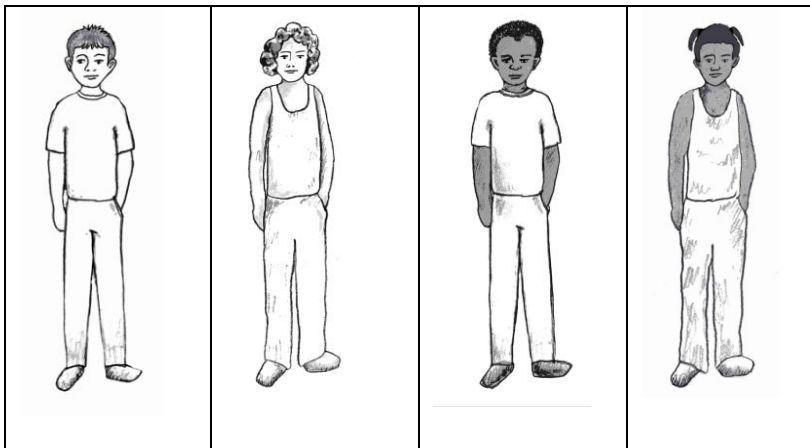


Figure 16: Mixed sex and ethnicity stimuli for ‘Hands in Pockets’

Slight variations in the facial proportions were inevitable, but the very slight upward bend of the mouth was retained, to try to make the presentations as innocuous as possible. Behavioural scientists have observed when using an Ekman ‘neutral face’ as stimulus that it is often rated as anything but ‘neutral’ (Somerville, Kim, Johnstone, Alexander & Whalen, 2004). A completely neutral face is often viewed in Western culture as anything but neutral; for a viewer to see someone looking at them with a completely passive face is seen as insolent, threatening or brooding. Functional imaging has found a correlation between state anxiety and the


presentation of the 'neutral face' to adults although the neutral face was conceived as a baseline condition (Somerville et al., 2004). Participants were shown alternating happy and neutral faces whilst Amygdala responses were measured, although there was some argument that the raised threat response to the neutral face presentation was more to do with a perceived threat in the shift away from a 'happy' face. A link has been found between anxious and avoidant attachment patterns and a tendency to perceive 'neutral' faces as less friendly and more rejecting (Meyer et al., 2004). As there was a possibility that children in Study 4 may be other than securely attached, this was an important consideration. However, in order not to compromise the measure and to ensure that there was no natural bias towards the postures being seen as threatening, a totally neutral face was avoided in preference for a calm face. Subsequent postures were drawn using the same framework, with the facial expression as close as possible to the original.

It is important to point out that when looked at together it can be seen that the presentations are not identical, but neither were they intended to be. A series of identical presentations would allow very little latitude or freedom for personal differences in attitude towards sex or ethnicity to be displayed. A balance had to be addressed whereby the representations were similar enough to be able to make a statistical comparison between them based on features which deliberately changed, for example sex and posture, but not so identical that the child would simply conclude they had seen the picture before and attempt to recall what 'feeling' they had chosen on the previous occasion. The participant would be faced with four presentations at a time, and these were mixed; see for example Figure 17 overleaf, which shows a single page from the finished Picture Pack.

No two identical postures were presented on the same page. Children were encouraged to decide which of the proposed 'feelings' best fitted the picture and not to spend too long thinking about it. Detailed administration instructions were designed so that the test could be administered either by the author or by any teacher or worker at the school in question without compromising the research process. Because the test relied upon spontaneous individual judgements it was important to ensure the test process itself did not prompt the child towards any particular course of judgement.


PICTURE PACK PART 1 - MATCHING FEELINGS

What do you think are the MAIN feelings of these children? You will see a box under each of the children with suggestions about how they might be feeling. Put a cross in the box besides the word or phrase that best describes what you think they might be feeling. There are no right or wrong answers - only what you think best fits the boy or girl. Then tick the box to say how SURE you are of what the feeling is.




This girl feels:	
<input type="checkbox"/>	Sad
<input type="checkbox"/>	Lonely
<input type="checkbox"/>	Like playing
<input type="checkbox"/>	Grumpy
<input type="checkbox"/>	Friendly
<input type="checkbox"/>	Angry
<input type="checkbox"/>	Nothing much
<input type="checkbox"/>	Like fighting

How sure I am:	
<input type="checkbox"/>	Very Sure
<input type="checkbox"/>	Quite Sure
<input type="checkbox"/>	Not Sure




This girl feels:	
<input type="checkbox"/>	Sad
<input type="checkbox"/>	Lonely
<input type="checkbox"/>	Like playing
<input type="checkbox"/>	Grumpy
<input type="checkbox"/>	Friendly
<input type="checkbox"/>	Angry
<input type="checkbox"/>	Nothing much
<input type="checkbox"/>	Like fighting

How sure I am:	
<input type="checkbox"/>	Very Sure
<input type="checkbox"/>	Quite Sure
<input type="checkbox"/>	Not Sure



This boy feels:	
<input type="checkbox"/>	Sad
<input type="checkbox"/>	Lonely
<input type="checkbox"/>	Like playing
<input type="checkbox"/>	Grumpy
<input type="checkbox"/>	Friendly
<input type="checkbox"/>	Angry
<input type="checkbox"/>	Nothing much
<input type="checkbox"/>	Like fighting

How sure I am:	
<input type="checkbox"/>	Very Sure
<input type="checkbox"/>	Quite Sure
<input type="checkbox"/>	Not Sure



This boy feels:	
<input type="checkbox"/>	Sad
<input type="checkbox"/>	Lonely
<input type="checkbox"/>	Like playing
<input type="checkbox"/>	Grumpy
<input type="checkbox"/>	Friendly
<input type="checkbox"/>	Angry
<input type="checkbox"/>	Nothing much
<input type="checkbox"/>	Like fighting

How sure I am:	
<input type="checkbox"/>	Very Sure
<input type="checkbox"/>	Quite Sure
<input type="checkbox"/>	Not Sure

TEST 2 - PICTURE PACKAGE - © MIDDLESEX UNIVERSITY 2003

Figure 17: Example page from Picture Pack

The full PP, administration instructions and Teacher's Notes can be found in Appendix 2.8, 2.7 and 2.5 respectively.

5.2.3. Forced Choice Appraisal

Children were asked to confer/attribute an emotional state to each picture using a series of eight possible emotional states. The choices were limited in order to allow a quantitative analysis of the children's responses. They included feelings judged by the author to be appropriate for children aged seven to 11 meeting another child in a social or playground situation. The playground is a major social environment for primary aged children primary and the focus of social interactions with peers, within which will be examples of children in many affective states. For example, there are those who are well integrated, friendly and playing with their peers; those who generally remain isolated and may spend time watching and observing the play of others but lack the confidence to engage; those who prefer solitary pursuits and do not seek to engage with peers; those who aggressively disrupt the play of others and those who have withdrawn from a group because of confrontation or distress (Costabile et al., 1999). The postures were therefore chosen to include depressive affect (sad, lonely), confrontational affect

(grumpy, angry, like fighting) and positive affect (friendly, like playing) along with the neutral affect of the bystander (nothing much). Identifying a tendency in a child towards appraising neutral, positive, depressive or confrontation affect was an important part of Study 2, as the normative responses gained in the study would be compared with the responses of an atypical population in Study 4: children with severe behavioural problems.

The emotion “Happy” not chosen for three reasons: 1) Happy is a highly positive emotion generally expressed by specific facial expression and none of the children are smiling; 2) The author was interested in eliciting choices of internal feelings which are not necessarily overtly expressed; 3) The author was looking for emotional bias on the part of the participant and there would be no latitude for this if the choice was too ‘easy’.

The choice of ‘feelings’ chosen ranged in quality of arousal from high positive arousal (like playing) to a highly negative affect (like fighting). Some consideration in the choice of ‘feelings’ was given to other models of emotional arousal and valence, for example Watson and Tellegen’s Circumplex Theory of Affect (Watson & Tellegen, 1985). It could be said that the choice also ranged from a choice highly positive affect through pleasantness, disengagement and unpleasantness to a choice of high negative affect – the hostile stance of ‘like fighting’.

Final choices of ‘feelings’ for each picture can be seen in Table 25. It should be noted that they were not presented to the child in any particular order, but that the same order was presented to all participants. It was decided not to randomise the order across participants for two reasons, 1) The author was not interested in investigating order effects and 2) It would make administration a very complex task which would need careful monitoring to be effective and as it was envisaged that class teachers would administer the PP, it was not deemed reasonable to make the process too difficult.

TASK 1: This girl/boy feels:	TASK 2: How Sure I Am
Sad	Very sure
Lonely	Quite sure
Like playing	Not sure
Grumpy	
Friendly	
Angry	
Nothing Much	
Like Fighting	

Table 25: Forced choice alternatives in emotion attribution task

In addition to asking for a perceived emotional state, as can be seen in Table 24, the child is asked to give a simple rating of their own confidence in their choice. The issue of confidence was raised by Study 1, which found that SEN children were significantly less confident in their perceptive abilities than their typically developing peers and SEBD children were equally confident as their typically developing peers. It was decided to use three categories only for this question for two reasons: 1) A simple choice would allow the children to make a quick general decision without having to think too hard about it and 2) three categories were deemed to be enough to distinguish those who were very confident from those who were not. This task was also to some extent an intentional distraction, encouraging the child to think they were being assessed on their ability to appraise the representation, rather than their internal processes.

5.2.4. Intentionality: an Action Tendency in Appraisal

Another important aspect of emotional appraisal which incorporated into this measure was that of intentionality. ‘Intentionality’ is a philosopher’s word, derived from the Latin *intentio*, which was in turn derived from the verb *intendere*, meaning ‘being directed towards some goal or thing’ (Jacob, 2003). Whereas philosophically all emotions are intentional in that they involve thought, feeling, bodily change, expression and action of some kind (Gunther, 2004), an appraisal of intentionality may be explained in terms of this thesis appraising that the other’s emotional state precedes or will be leading directly to an action rather than just a state of being (having an action tendency). In the context of the PP this meant the child choosing an emotional stance which alludes to an action tendency (having a purpose or objective to initiate some behaviour or another) rather than a passive stance where no action towards the other was expected. For example, if the child was seen to be ‘sad’, this would be conceived as an emotional state but not one necessarily leading to any action *towards the viewer*. However, should the child regularly view the other as having an action intent towards the viewer in some way, rather than just ‘being’, it would be indicative of a tendency to see others as wanting to actively engage with them.

Two choices for PP stimuli alluded to intentionality in this respect: ‘like playing’ (positive intentionality) and ‘like fighting’ (negative intentionality). The posture most likely to attract an intentional appraisal was considered to be the ‘Hands on Hips’ posture as it suggested a readiness for action or response (Givens, 2007).

Examination of choice of affect for Study 2 therefore included measuring the occurrence of this aspect of intentionality. Scores were scrutinised to see if some postures attracted more negative affect ratings than others. In addition, the number of ‘intentional’ appraisals made by

participants will be examined and the sex and ethnicity of stimulus and participants compared to choices.

5.2.5. Body Postures: Scoring and Analysis

Scoring of the choice of emotion for the children's postures was designed to produce a number of different variables. Valence of choice (positive or negative emotion) was examined categorically, as was intentionality (intentionally of choice/no intentionality). The eight choices presented to the child ranged in arousal from 'like playing' (high positive affect, high arousal, intentionality) through 'friendly' (pleasant affect, low arousal), 'nothing much' (disengaged affect, no arousal), 'sad', 'lonely' (unhappiness, unpleasant affect, low arousal), 'grumpy', 'angry' (unfriendliness, unpleasant affect, high arousal) to 'like fighting' (high negative affect, high negative arousal, intentionality). These were designated into raw categories scoring one to eight respectively on a Likert style scale. However, the author was concerned that the eight raw categories as they stood did not reflect an ordinal progression as there was 1) a very arbitrary division between adjacent categories and 2) some categories were very closely related and did not indicate much of a change (e.g. sad and lonely) whereas some adjacent categories were very disparate (e.g. friendly and nothing much). It was decided to recode raw categories into an ordinal, sequenced progression of choice for non-parametric analysis. Consideration was given as to how to recode these variables: two possibilities were considered: 1) an ordinal system based on valence and arousal (a six category system) or 2) a circumplex system in terms of positive and negative affect (a five category system).

The six category system of Valence/Arousal considered rated the raw categories in a linear arrangement in terms of valence (positive and negative) and arousal (high arousal=excitement, physiologically active; low arousal=passivity, physiologically relaxed) It combined the categories of grumpy/angry, as these are very closely valenced although differing in arousal, as indicated in Table 25 below and sad/lonely (for reasons given above) to provide a cohesive ordinal pattern with a interpretable sequence.

The five category system considered for grouping was based on the Circumplex Theory of Affect (Watson & Tellegen, 1985) and followed a balanced sequence from High Positive Affect to High Negative Affect (see Table 26).

8 Raw Response Categories	6 Ordinal Categories	Valence and Arousal Category groups	5 Ordinal Categories (Circumplex Model)
Like playing	Like Playing	Positive affect, high arousal	High Positive Affect
Friendly	Friendly	Positive affect, low arousal	Pleasantness
Nothing Much	Nothing Much	Indifferent affect, no arousal	Disengagement
Sad	Unhappy	Negative affect, low arousal	Unpleasantness
Lonely			
Grumpy	Unfriendly	Negative affect, medium to high arousal	High Negative Affect
Angry			
Like Fighting	Like Fighting	Negative affect, high arousal	

Table 26: Category choices for emotion attribution

Whilst this gives a very neat symmetrical solution with disengagement as the central position it has to be remembered that the Circumplex Model is a circular model, with affect as a continuous process rather than discrete ‘happenings’, whereas the eight raw categories are discrete choices based on an arousal system. On consideration the author felt that the six category Valence/Arousal system, which has a linear arrangement, was the most appropriate as a representation of the choices available to the children and provided the best explanation for the data. It combined similar affect choices into the following groups: 1) Like playing, 2) friendly, 3) nothing much, 4) unhappy, 5) unfriendly and 6) like fighting (see Table 23 for details) which kept the process of emotional change intact, whilst preserving the two intentional categories as the extreme positions of valence and arousal, thus integrating intentionality into the model. The Valence/Arousal system not only made it easier to identify the type of response given but provided a more cohesive and interpretable scale for ordinal analysis than would the eight raw categories, which are more nominal choices. Whilst it means collapsing certain category choices (unfortunate but inevitable) this was felt to outweigh disadvantages.

A further consideration was the type of analysis to use for data of this kind. Whilst median values are traditionally considered more appropriate as a means of analysis for ordinal data (Stevens, 1946, p679), there has been a deal of controversy over the last 30 years about ‘permissible statistics’, leading to many modern behavioural scientists using mean values as an appropriate method for ordinal data as well as interval scale (Michell, 1986). It is argued that with the computational abilities of modern statistical software it is more important to determine the means of analysis by the research question and not by strict attributes of data (Vellerman & Wilkinson, 1993). Interval scale statistics such as mean values can legitimately be used on ordinal scale values as long as the (albeit unknown) interval distance is not too variable. Using

a six category scheme of valence and arousal converts the original scale into a more linear measurement for this purpose. Using interval scale statistics facilitates a much wider choice of analytic methods.

Mean choices and frequencies of choice were therefore examined for postures, sex and ethnic representations (and interactions if found) in order to establish a normative pattern of responses to the series of body postures. Two types of analysis were performed for the body postures. It was important to identify how children responded to each of the four basic postures in terms of appraisal of affect, and this was done using the original eight category scale. This allowed an investigation of the range of responses that could be expected for each body posture from typically developing children. However, as inferential statistics were required to investigate group differences and sex and ethnicity interactions between stimuli and participants (and between status groups in Study 4), responses were also converted into a categorical scale which permitted more in-depth statistical analysis.

As the PP was administered in groups, either by the author or by a classroom teacher, there were occasional incidents of missing responses. This was rarely found to be intentional, for example one picture not being assessed on a page that was otherwise completed; more generally a child would appear to have turned over two pages at a time and four postures would not be rated. As it was important to retain as many participant responses as possible it was decided to exclude any missing data analysis by analysis, including the responses of two children who failed to declare sex. This inevitably means that participant numbers (and degrees of freedom) vary from analysis to analysis.

The normative pattern of responses would be compared in Study 4 to a group of behaviourally challenged children withdrawn from mainstream schooling.

5.3. RESULTS

Responses to the 16 body postures included eight choices of feeling and confidence in choice. These were converted into six ordinal categories (see Table 27 below) for inferential analysis, and organised in states of arousal (see Method for details and rationale). Two specific responses: ‘Like Fighting’ and ‘Like Playing’ were considered as intentional choices.

8 Raw Response Categories	Raw Score	General Affect	6 Ordinal Categories	Valence and Arousal Category groups	Score given
Like playing	1	Pleasant	Like Playing	Positive affect, high arousal	1
Friendly	2		Friendly	Positive affect, low arousal	2
Nothing Much	3	Neutral	Nothing Much	Indifferent affect, no arousal	3
Sad	4	Depressive	Unhappy	Negative affect, low arousal	4
Lonely	5				
Grumpy	6	Confrontational	Unfriendly	Negative affect, medium to high arousal	5
Angry	7				
Like Fighting	8		Like Fighting	Negative affect, high arousal	6

Table 27: Choices for emotion attribution: raw and ordinal categories and scores

Scoring was from one to eight in raw categories, with eight as representative of high arousal, negative valence, and recoded into a six-point ordinal Likert scale. Descriptive data on the eight raw category responses and implications of this will be assessed before inferential analysis using the six Valence/Arousal category system.

5.3.1 Raw Categories – Ratings of General Affect

5.3.1.1. Appraisal of Posture Group

Missing data was excluded on an analysis by analysis basis which means that participant numbers (and degrees of freedom) vary.

	Hands Folded – all cases	Hands in Pockets - all cases	Arms Folded - all cases	Hands on Hips - all cases
Mean	3.57	3.62	5.50	6.20
Median	3.50	3.50	5.50	6.75
Mode	4.00	3.00	6.00	8.00
St Dev	1.05	0.84	0.76	1.72
Minimum	1.00	1.00	2.00	1.00
Maximum	8.00	6.00	7.00	8.00

Table 28: Descriptive statistics for each of the four postures

Measures of central tendency for the four postures can be seen in Table 28 above and reflects raw scores inclusive of sex and ethnic categories. Mean scores for ‘Hands Folded’ and ‘Hands in Pockets’ were lower than the other two groups. Mean scores for the two more provocative postures, ‘Arms Folded’ and ‘Hands on Hips’ were notably higher. The most commonly recorded score for Hands on Hips was eight (like fighting). Arms Folded showed a mode score of six: (grumpy), reflecting a generally negative appraisal. The mode score for ‘Hands in Pockets’ was three (nothing much) and for ‘Hands Folded’ was four (sad).

Full graphs showing the response of children to the eight category choice of affect can be found in Appendix 2.10. Responses varied widely for each body posture depending on the sex and ethnicity of the model. In a preliminary analysis using all eight category choices, chi-square comparisons of the scoring on each of the four postures found significant differences with ‘Hands on Hips’ attracting more negative appraisals than any ‘Hands Folded’ ($\chi^2=133.97$; $p<0.01$), ‘Arms Folded’ ($\chi^2=53.28$; $p<0.01$) and ‘Hands in Pockets’ ($\chi^2=155.42$; $p<0.01$). ‘Arms Folded’ was the second most negatively rated posture, scoring significantly more negatively than ‘Hands Folded’ ($\chi^2=184.80$; $p<0.01$) and ‘Hands in Pockets’ ($\chi^2=197.87$; $p<0.01$). There was no significant difference between ‘Hands in Pockets’ and ‘Hands Folded’.

5.3.1.2. Trends of Response by Sex and Ethnicity of Stimulus

Looking for possible sex or ethnicity differences in the way the four postures were viewed, only one significant sex difference was observed for the posture ‘Hands Folded’ with females viewing the posture more negatively than males ($\chi^2=28.968$; $p<0.05$).

5.3.2 Inferential Analysis: 6 Category Scale

Tables and figures supporting the inferential analysis for Study 2A can be found in Appendix 2.11. For inferential analysis the six category scale was used which gave a greater chance for differences in affect to be detected between groups and allowed participants' responses to be reliably handled as ordinal data and facilitate more complex analyses (see Method).

As expected, Wilcoxon Signed Ranks test found significant differences in the rating of the postures, in accordance with the analysis of raw scores. Apart from a comparison between 'Hands in Pockets' and 'Hands Folded' where analysis confirmed no significant difference, significant differences were apparent between each of the other postures. The posture 'Hands on Hips' was rated significantly more negative than 'Arms folded' ($z=4.156$; $p<0.01$). It was also rated as significantly more negative than 'Hands in Pockets' ($z=11.054$; $p<0.01$) and 'Hands Folded' ($z=11.165$; $p<0.01$). Arms Folded was rated as significantly more negative than 'Hands in Pockets' ($z=13.094$; $p<0.01$) and 'Hands Folded' ($z=12.648$; $p<0.01$). Although the mean for 'Hands on Hips' was the highest, Arms Folded had high ratings also for negative valence, incurring a large portion of scores for medium to high arousal.

5.3.2.1. Group Differences in Posture Appraisal

In analysis, it was found that girls judged 'Hands on Hips' consistently more negatively than boys did $\chi^2=4.433$; $p<0.05$. No other sex differences were found. Using a Kruskal Wallis test, no differences in judgement of posture were found for either ethnicity or ethnicity as two groups (White and Non-White). No differences were found for age or year at school.

5.3.2.2. Group Differences in Appraisal of Stimulus by Sex

As this was a two by two sex and ethnicity design, group differences for different specific sex and ethnic presentations were examined. Choices of affect for all postures representing Boy White, Boy Black, Girl White and Girl Black were examined. Using Wilcoxon Signed Ranks test for non-parametric data, mean scores for all postures in the four separate ethnic and sex combinations were examined.

5.3.2.2.1. General Appraisal of Presentations

As can be seen from Figure 18 below, the highest mean score (indicating the most negative rating overall for postures) was for Boy Black, followed by Girl Black. The lowest mean score (indicating the least negative appraisal) was for Girl White.

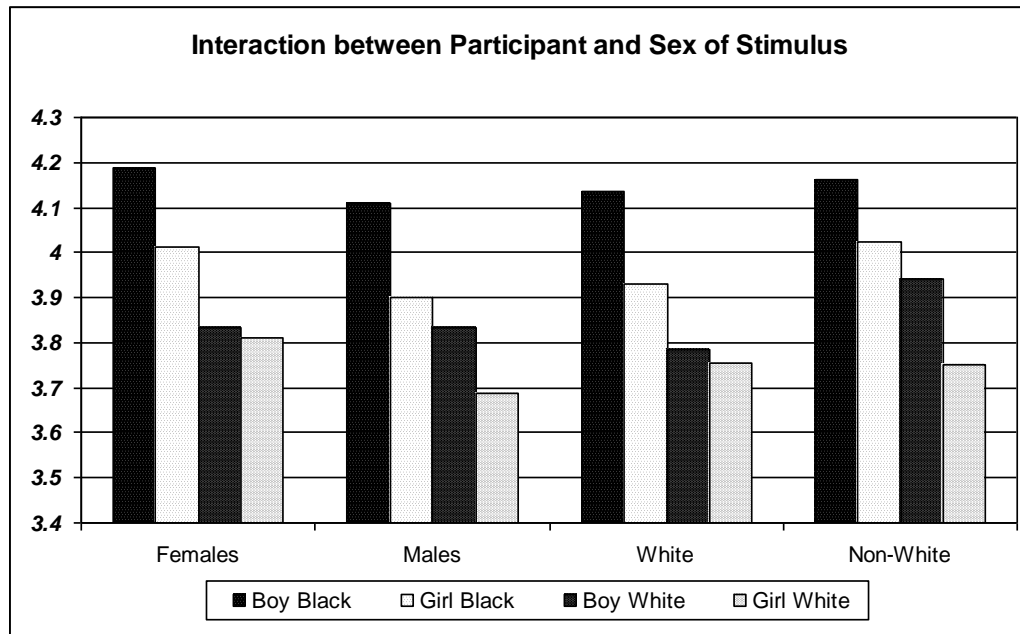


Figure 18: Mean values for the four ethnic and sex stimulus presentations

Using total mean scores, Boy Black postures were found to be rated as significantly more negative overall than Boy White ($z=6.590$; $p<0.01$), than Girl Black ($z=4.274$; $p<0.01$) and than Girl White ($z=7.400$; $p<0.01$). Girl Black was rated as more negative overall than Boy White ($z=2.741$; $p<0.01$) and Girl White ($z=4.573$; $p<0.01$). No significant difference was found between Boy White and Girl White ($z=1.915$; $p=0.056$). Mean scores for sex and ethnicity in rating of the four presentations were very close. As expected there were no significant differences in the way that males and females or white and non-white ethnic groups rated any of the four different presentations. No significant differences were found for age or year at school. Scoring patterns for the four different presentations were consistent across both sex and ethnic groups, showing a strong uniformity in appraisal.

5.3.2.2.2. Appraisal by Ethnicity

Looking at Non-White children alone, there was no difference in how males and females rated Boy Black, Girl Black, Boy White or Girl White. Similarly, looking at White children alone, there was no difference in how males or females rated the four presentations. There were no sex/sex or ethnicity interactions for the four specific presentations. The question of interaction in general between sex of stimulus and sex of participants and also ethnicity of stimulus and ethnicity of participant was addressed.

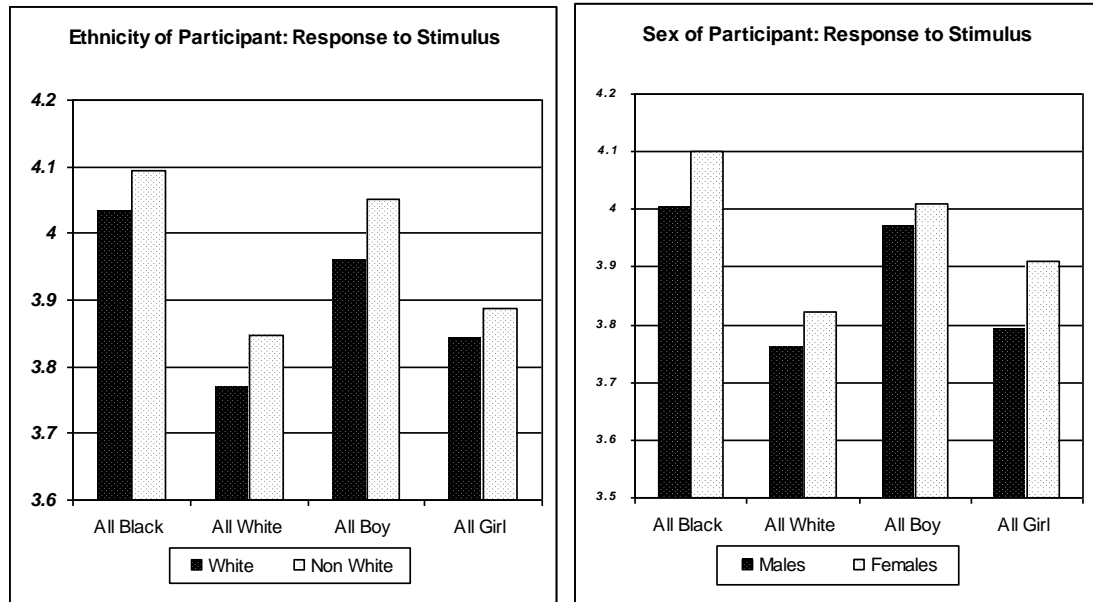


Figure 19: Mean values for each ethnic and sex stimulus group

Figure 19 above shows mean score values for group presentations. Using Wilcoxon Signed Ranks it was found that Black postures (mean score 4.05) on the whole were appraised significantly more negatively than were White postures (mean score 3.79), $z=7.243$; $p<0.01$. White children appraised Black presentations overall as more negative in affect than White presentations: $z=5.939$; $p<0.01$; mean difference 0.264. However, Non-White children also appraised Black presentations as a whole as more negative in affect than White presentations: $z=4.225$; $p<0.01$; mean difference 0.246. There was no difference between Non-White and White appraisals, showing that the tendency to view Black presentations as more negative in affect was a universal quality of this sample.

Non-white children appraised Boy presentations as being significantly more negative in affect than Girl presentations: $z=2.437$; $p<0.05$. White children also appraised the affect of Boy presentations as significantly more negative than Girl presentations: $z=3.385$; $p<0.01$. Although mean scores showed that Non-whites viewed both Boy and Girl presentations more negatively than did Whites, there was no significant difference between the groups.

5.3.2.2.3. Appraisal by Sex

Looking at sex of participant and sex of stimulus, there was a significant difference in the rating overall of Boy and Girl presentations; Boy presentations were appraised significantly more negative in affect than were Girl presentations: $z=4.170$; $p<0.01$. The same was true looking at Male scores only: $z=4.146$; $p<0.01$ and looking at Female scores alone: $z=2.052$; $p<0.05$. There

was no significant difference in the rating by Males or Females of either boy or girl presentations: patterns of appraisal were very similar.

Male participants appraised Black postures as being significantly more negative in affect than White Postures: $z=4.931$; $p<0.01$. Female participants alone, Black postures were again appraised as being significantly more negative in affect than White postures: $z=5.379$; $p<0.01$. Although mean scores showed that females are consistently rating both Black and Girl presentations more negatively than are males, there was no significant difference between males and females in the appraisal of ethnicity of stimulus.

5.3.3. Intentionality – Item Analysis of Intentional Appraisals

Within the eight raw choices of affect were two choices which conveyed intentionality. The number of ‘intentional’ choices made by participants was examined, including whether children more readily attributed intentionality to boy or girl postures, or to black or white presentations. Interactions between sex or ethnicity of stimulus and participant were also examined.

5.3.3.1. Attribution of Intentionality – Whole Sample

Looking at total scores for Intentionality, there were no main effects for sex or ethnicity. However, a significant main effect for year group was found, with older children (years 5 and 6) choosing intentional postures significantly more frequently than younger children (years 3 and 4): $F(1,232)=8.358$; $p<0.01$. However, a significant interaction was found between ethnicity and year group: $F(1,232)=4.951$; $p<0.05$ with the disparity in scores between year groups being greater for non-white children than white children. A significant cross-over effect was also found between sex and year group: $F(1,232)=6.102$; $p<0.05$ with girls in years 5 to 6 choosing more intentional appraisals than boys, but boys in years 3 to 4 choosing more intentional appraisals than girls.

5.3.3.2. Attribution of Intentionality – Postures Alone

Looking at the postures separately, it was clear from the percentages of children choosing either friendly or confrontational intentionality on at least one occasion that the posture ‘Hands on Hips’ attracted the highest number of confrontational appraisals (see Table 29).

	Hands on Hips	Arms Folded	Hands in Pockets	Hands Folded
Chose 1 - friendly	26.3%	1.6%	22.2%	30.5%
Chose 8 - confrontational	63.8%	9.9%	1.6%	6.2%

Table 29: Percentage of children choosing type of intentionality

‘Hands on Hips’ invited greater intentional appraisal, particularly as a confrontational posture. The other two postures were seen as intentionally friendly as ‘Hands on Hips’. This difference was statistically significant: $\chi^2(4)=49.08$; $p<0.01$. The Arms Folded condition attracted significantly fewer counts of friendly intentionality than the other three groups: $\chi^2(2)=462.32$; $p<0.01$.

5.3.3.3. Attribution of Intentionality – Ethnicity and Sex of Stimulus

A general effect was found for the ethnicity of the stimulus using Wilcoxon Signed Ranks, with White postures being seen overall as more ‘intentional’ than Black postures: $z=4.185$; $p<0.01$. This effect was found for both confrontational intentionality (like fighting): $z=2.813$; $p<0.01$ and for friendly intentionality (like playing): $z=2.353$; $p<0.05$. There was no general effect for sex of stimulus: female postures were not viewed differently overall to male postures across the sample. Looking at friendly and confrontational intentionality, male postures were interpreted as ‘like fighting’ significantly more than were female postures: $z=2.034$; $p<0.05$.

5.3.3.4. Attribution of Intentionality – Sex of Participant

No significant differences were found using ANOVA in either boys’ or girls’ choices of intentional affect for either male or female postures: neither male nor female postures were seen as more intentional. This does not indicate whether boys or girls were rating male postures significantly differently from female or not, just that their ratings for intentionality were no different. Using Wilcoxon Signed Ranks and boy participants’ scores alone, there was no difference in intentionality choices for male and female postures and scores were highly correlated ($p<0.01$). A similar effect was found for girl participants: there was no difference in intentionality choices for male and female postures and scores were highly correlated ($p<0.01$).

Boys made a higher proportion of intentionality choices for White stimuli than for Black stimuli: $z=2.686$; $p<0.01$. The same effect was found for girl participants; they made significantly more intentionality choices for White presentations than for Black presentations: $z=3.107$; $p<0.02$. Looking at the number of times children chose friendly intentionality (no 1)

or confrontational intentionality (no 8), no difference was found in confrontational or friendly intentionality for looking at boy participants alone, but girl participants saw White stimuli as significantly more confrontationally intentional than Black stimuli ($z=2.183$; $p<0.5$), but not more intentionally friendly.

5.3.3.5. Attribution of Intentionality – Ethnicity of Participant

White participants rated White presentations as more intentional than Black presentations: $z=2.895$; $p<0.01$. Looking at the number of times White children chose friendly intentionality (no 1) or confrontational intentionality (no 8) for White or Black presentations, no difference was found. No differences were found in White participants' appraisals of intentionality of male or female postures. Non-white participants also rated White presentations as more intentional overall than Black presentations: $z=3.426$; $p<0.01$. Looking at the number of times children chose friendly intentionality (no 1) or confrontational intentionality (no 8), no difference was found for friendly intentionality, but Non-White participants rated White stimuli as significantly more confrontationally intentional than Black stimuli: $z = 2.794$; $p<0.05$. No differences were found in Non-White participants' appraisals of intentionality of male or female postures.

5.3.4. Confidence in Choice

Participants were asked how sure they were about their choice. Children chose from three options where 3 = very sure, 2 = quite sure and 1 = not sure.

Choice	Total Chose	Male Chose	Female Chose
Very Sure	1756	927	829
Quite Sure	1612	767	845
Not Sure	417	202	215

Table 30: Number of times children chose levels of certainty across all presentations.

As can be seen in Table 30 above, most children chose 'Quite' sure or 'Very' sure, although approximately 20% were also not sure about their choice. Figures for males and females were almost identical. Significantly less children thought they were 'not sure' than were 'quite sure' ($z=11.641$; $p<0.01$) or 'very sure' ($z=11.200$; $p<0.01$).

5.4. DESIGN CONSIDERATIONS: CHOICE OF POSTURES

The response of TD children to the four postures used in the Picture Pack was consistent and followed predictions for appraisal based on previous research. This is encouraging for future use. Two postures, 'Arms Folded' and 'Like Fighting', were generally viewed as more confrontational than 'Hands Folded' and 'Hands in Pockets'. These latter two postures were rated mainly as having a neutral or depressive aspect. The choice of depressive affect was to some extent unexpected as the postures were very simple and the facial expression bland and with a very slight smile, it was anticipated that most children would choose 'nothing much' for these two postures, but this was not the case. Indeed, the option of 'nothing much' was included in the choice of affect to give the child the opportunity to suggest that they did not want to be forced into a choice of affect. The majority of children however did not choose this option and were happy to make an emotional appraisal. This is encouraging, as a predominance of neutral choice for any posture could suggest that participants simply did not know how to respond to the stimulus.

No significant design changes are recommended following this study and the same stimuli were used for Study 4. Discussion of the findings of this study can be found in Chapter 9.

CHAPTER 6: STUDY 2B: APPRAISAL OF FACIAL EMOTION AND REASONS FOR EMOTIONAL CHANGE

6.1. INTRODUCTION

Study 2b aimed to examine whether children could 1) attribute an appropriate emotion to a child's facial expression and 2) in comparing two different expressions, give an age appropriate reason for why the child's feelings may have changed, in providing mental-state terms (mentalising, or reflectivity; see Method) with these reasons. This would provide an indication of the ability of typical children in primary-aged schooling not only to identify appropriately facial emotion (which was expected) but provide insightful reasons into emotional change.

Part 1 of Study 2b examines the child's ability to accurately label facial emotion. The ability to identify basic emotional faces is generally thought to be universally acquired (Ekman, 2003), however this is not the case with severely handicapped autistic subjects (Happé, 1994). Although all typically developing children will learn to recognise facial emotion, studies with infants and young children have found that some emotional faces are recognised earlier than others. A happy face is better identified, labelled and differentiated by five-year-olds than fear, anger, surprise, sadness or pain (Bullock & Russell, 1986). Young children will typically have difficulty differentiating or correctly labelling some photographs of emotional expressions if given a number to sort: although rates of accuracy improve with maturity, many emotional expressions have 'fuzzy borders' (Izard & Read, 1986). Even adults will mislabel a proportion of faces in a categorisation test, in particular anger, sadness and disgust (Bullock & Russell, 1986).

Over many studies it can be concluded that the accurate recognition of emotional faces does in fact have a developmental path. Preschoolers' abilities to label and recognise emotional expressions facially increases notably between the years of two and four (Denham, 1998), improving in speed and accuracy. A child's ability to accurately identify emotional expressions improves throughout childhood, until puberty. A Dutch study with children and adults found the ability to correctly identify emotion in faces stabilised between eight and twelve years of age (DeSonneville et al., 2002); it is suggested that this ability may be linked to the development of social skills. Even at the early ages of three and four years children who are more accurately

able to recognise emotion in faces have been rated as more socially skilled by peers and teachers (Dunn, 1995).

A very recent study by Wodcadlo and Rieger (2006) using static emotional faces with children of eight years of age who had been pre-term babies (and consequently suffered delayed development) showed a correlation between poor social skills and the decoding of some emotional faces, namely those of sadness, anger and fear. There was no inability to decode happy faces (Wocadlo & Rieger, 2006). This study used four emotional faces: happy, angry, angry and fearful and employed a series of static photographs of 24 adult and 24 child expressions varying in emotional intensity (Receptive Faces subtest of the Diagnostic Analysis of Nonverbal Accuracy: (Nowicki & Duke, 1994)). The identification of a delay in facial recognition related to developmental delay and poor social skills raises the possibility that children with poor social skills linked with protracted emotional, social and behavioural problems may also exhibit impaired emotion decoding, which may impact on their ability to correctly identify faces showing negative emotionality in this study.

6.1.2. Measuring Appraisal of Facial Emotion and Reasons for Change

Part 2 of Study 2b examines the child's ability to determine a reason for an emotional change. Although the child will increase in the capacity to reflect on their own emotional state throughout their primary years, many children within the eight to 12 age range will still have a poorly developed capacity for reflective functioning: the ability to mentalise (use mental state terms) regarding other's, as well as one's own, internal or affective state. This is likely to be more pronounced in girls than boys in line with developmental differences. In a longitudinal study which examined children's ability to use mental state terms in conversation with peers, girls were found to use more mental state terms than boys across each of the ages of testing between the ages of three and five years (Hughes & Dunn, 1998). This is thought to reflect sex differences in language development which exist above and beyond the influence of parent upon child (Huttenlocher, Haight, Bryk, Seltzer & Lyons, 1991) from early infancy. Developmental differences with children's mental-state terms in conversation increased in quantity and sophistication with age, even across the comparatively small age period of the study (Hughes & Dunn, 1998). Children aged four are more likely to give situational explanations for a change from a negative to a positive emotion (as in recovering from the loss of a bicycle) whereas by 10 years most children will give mentalistic explanations (Harris, 1989).

However, many children with clinical problems have been found not to actively mentalise at all (Oandasan, Ensink, Target & Meredith, 2001). As in the first part of the study, sex and ethnicity of stimulus were also a factor of the activity, enabling the possibility of an interaction with the sex or ethnicity of the participant.

6.2. METHOD

6.2.1. Ascribing Emotion to Faces

This part of the Picture Pack investigates a child's ability to ascribe an appropriate emotion to four static emotional faces and their capacity for mentalising, or reflecting, on another's change of emotional state as indicated by the use of mental state terms within reasons for a change in emotions. Two pairs of pictures, one male and one female, were used (see Figure 20). Each pair showed the same child but reflecting a different affective state. As with the first section of the study, the faces were drawn by the author and a light box used to convert the facial expression into an opposing expression. The initial expression drawn was 'happy', the face then altered to represent a negative emotion: one depressive emotion and one confrontational emotion.

6.2.1.1. The Process

Faces for this part of Study 2 were initially prepared by the author in 2000 as part of a revision of the KAI-R; the Kusche Affective Interview–Revised, which used interview process to examine emotional awareness and experience (Kusche, 1995) within a programme to measure the effectiveness of an intervention for affective development. The KAI-R had revised original line drawings of emotion and used a series of four partly stylised faces (two male, two female) as part of the stimulus. At the time the author was asked to review the KAI-R, the suggestion was made that the faces should be revised to give greater detail, a jealous face should be drawn as the first female picture and male pictures changed to represent a child from an 'ethnic minority group', that is 'non-white'. The revision was done by the author as part of a separate research project overseen by another University but was never used for research purposes. In the original KAI-R each picture of facial emotion was shown to the child with the prompt, "Here is a picture of a boy who felt happy". The second picture was then shown along with the prompt, "Later this same boy felt sad". The participant was then asked, "His feelings changed. How do you think this (could of) happened?" (verbatim). The same process was used with the Girl pictures, which were designated as jealous and happy. The interviewer was instructed to keep giving prompts to the child to give reasons why the emotion may have changed, and the child was scored on the number of suggestions they were able to make.

In the event the author decided not to use the KAI-R as part of the current study for three reasons: 1) It is a long process of interview covering five domains of emotional understanding which would take at least 40 minutes to administer and it would not be possible for the author alone to administer this to a large enough number of children to provide a normative sample; 2) Gaining consent for an extended interview with each mainstream pupil would demand a heavy commitment from the school and child, rather than a self-report process which would enable the child to participate within a normal classroom environment; 3) The author wanted to examine to child's ability to identify emotion in the faces in conjunction with their ability to discuss emotional change, therefore different stimulus prompts were required.

For this research project the author modified this process from interview to self-report. The child was shown a sheet with two pictures and three questions at a time (see Appendix 2.8). The child was required to look at the picture pairs and answer three questions: "What do you think the child is feeling?" (for each picture) and "If his/her feeling has changed, why do you think this might be?" These questions were deliberately open rather than a fixed choice alternative. The first two questions required an identification of an appropriate emotion from the facial display. The child was also required to identify that affect has changed. In contrast, the third question asked for an explanation of changed affect. The child was scored dependent upon the reflective quality of their answer (as described below).

6.2.1.2. Standardisation of Faces

The four faces drawn by the author were based on the stylised drawings in the KAI-R, and were intended to represent happy, sad, jealous and happy. The two boy faces were drawn to be ethnically 'non-white'; they were not overtly black, but neither were they white. The girl's faces were drawn as white. Because the four faces had not been used before and the identification of emotion was a 'free choice' method the emotions considered most appropriate for each face were standardised using an adult sample. Forty adults were asked to complete a sheet giving three suggestions for each face. As can be seen in Appendix 2.3 adults had a free choice to provide three emotions they felt were most appropriate for each picture.

In total 38 responded and the most commonly rated emotion for each face was chosen as the 'most appropriate'. Although 'jealous' did feature for picture 3 it was by no means the primary emotion. Whereas each picture was generally rated either negative or positive in terms of valence, there were some atypical responses in this adult group (see Appendix 2.3). As can be seen in Figure 20 overleaf some chose a negative emotion for an otherwise universally positive

expression. This was noticeable in particular for the smiling boy where complex emotions such as ‘mischievous’, ‘shy’ and ‘up to no good’ were proposed. Scoring on the second part of the PP activity was in two parts. Firstly, whether or not the child had chosen an appropriately valenced¹³ emotion for each of the four faces (appropriateness based on the adult standardisation) and secondly, on the quality of the reason given for the emotional change from one expression to another.





Presentation	Face	Valence	Presentation	Face	Valence
Picture 1		Positive = 32 Negative = 6	Picture 2		Positive = 0 Negative = 38
Presentation	Face	Valence	Presentation	Face	Valence
Picture 3		Negative = 37 Unsure = 1	Picture 4		Positive = 36 Negative = 2

Figure 20: Faces used and valence rated by adults during standardisation

6.2.1.3. Emotional Faces – Scoring and Analysis

The four emotional faces were designated by the adult sample as: Boy 1 = Happy, Boy 2 = Sad, Girl 1 = Angry and Girl 2 = Happy. Children’s responses were judged against a progressive objective scoring system of four categories, detailed in Table 31 overleaf.

¹³ For example, if picture 1 (boy smiling) was judged as being ‘happy’ in the standardisation procedure, any positive emotion linked to happiness, joyful, pleased, satisfied and so forth, would be considered appropriate, whereas a negative emotion such as ‘lonely’ would not.

This system ranged from a wholly inappropriate choice to the target emotional choice and contained scales of appropriateness and valence. An inappropriate emotion with the wrong valence (as illustrated in table 31) would gain a lower score than an inappropriate emotion with the correct valence, as this was further from the target emotion. If a child gave more than one emotional choice, the closest to the target emotion was counted when scoring. Deviations from the target emotion (even differences of valence) could well be an effect of individual differences, but it was also considered possible that some groups of children (i.e. those with behavioural problems) would show a higher tendency towards inappropriate categorisation than well-adapted children.

Facial Emotion Scoring:
0 = inappropriate emotion, wrong valence (<i>e.g. happy for sad, angry for happy</i>)
1 = inappropriate emotion but right valence (<i>e.g. angry instead of sad, lonely instead of angry</i>) OR 1 = situational comment - not really an emotion - right valence but not appropriate
2 = appropriate emotion and right valence, but not primary choice - (<i>i.e. lonely instead of sad, annoyed instead of angry</i>) OR 2 = situational comment - not really an emotion - right valence but appropriate – (<i>i.e. where child specifies 'like playing' for happy</i>)
3 = Target emotion - appropriate emotion and right valence, primary choice (happy, sad, angry, happy) – NB synonyms are considered as acceptable (<i>i.e. upset, unhappy or miserable will be considered synonymous with sad; cross with angry</i>)
Additional Provisos:
If child cites primary emotion in conjunction with another emotion, they still get full 3 score - best offer counts.
If child scores 0 or 1 (inappropriate emotion) they cannot score higher than 1 on the emotional reasons.
Child needs to get 2 appropriate emotions in this section to score 3 for 'reason for change'.

Table 31: Scoring system for emotional faces

Scores for the emotional faces were linked to the reasons given for emotional change in that a full score was not awarded for emotional change if emotions given for the two faces were inappropriate. The rationale for this was that if the child was unable to choose two appropriate emotions from basic facial expressions, they could not really have understood that an emotional transition had taken place. The main purpose of this part of the study was to confirm the ability of typically developing children aged seven to eleven to make appropriate choices for emotional faces. In addition, as the two pairs of faces differed ethnically, it was possible to examine whether there was any interaction between ethnicity of stimulus and ethnicity of participant in the ability to discern appropriate emotion.

6.2.2. Emotional Reasons: Development of Scoring System

The original KAI-R used a developmental stage scheme to code children's responses to the question of emotional change (Kusche, 1995). This was a four category response system, originally developed by Carroll and Stewart (1984) and shown below in Table 32.

Score	Description
0	"I don't know", "No", no response, vague, unclear, or inappropriate response
1	Explanation is concrete, particularistic or idiosyncratic. Does not explain how feelings can change, but refers to external change alone (for example, 'when you're mad and they take you to pizza', 'by somebody spending the night', 'by playing with you', 'your brain tells you how to be', 'you can move your face', 'you could play a video game or ride a bike around')
2	Child can name more than one situation associated with changing feelings, or talk about changing externally without a strategy of self action that will change a particular feeling. Reference to changing the face must generalize to more than one expression, or, the child's response is to avoid or deny the emotion (for example, 'just forget about it', 'when they brought me back a present or explained why they had to leave, I would not feel upset anymore', 'just change it – stop crying, stop being mad, stop being sad', 'by the way your faces are', 'by the different ways you make your face go', 'control yourself', 'your head tells your body to stop what kind of feelings you have.'
3	Child uses self-reflective strategy for making feelings change that implies ability to take another perspective on the self, changing unwanted states. Strategy includes thinking or acting in ways that change one's mood (for example, 'by thinking of something to do to make yourself happy or, if afraid, cuddle up with a stuffed animal or something', 'I can make something that I always wanted and didn't know how – and that makes me happy', 'If I'm sad and I do something and like it, it makes my feelings change', 'thinking about something else or counting sheep'.

Table 32: Carroll and Stewart's (1984) developmental stage coding scheme

It was decided not to employ this scheme for coding of the emotional reasons in this study as: 1) conditions of eliciting response were different: the KAI-R used an extended interview with prompts to probe the child's ideas and previous experience, this study employed a simple question based on the observation of two facial emotions; 2) the author wanted to establish an ordinal grading system which would be based on the type of response typical of children of the primary age group whilst incorporating research which had taken place since Carroll and Stewart (1984) formulated this scale, and 3) the author felt some of the examples given in the formulation of this scale were not appropriate for the level of expertise with emotionality that the scale was proposing to measure; in other words, it does not support a developmental sequence of response.

The author designed the own coding scheme for this study incorporating some precepts of the Carroll and Steward (1984) scheme (inappropriate responses, concrete or physical responses, self-reflection (reflectivity or mentalising ability). The open response to the question “If the feeling has changed why might this be” was examined in two ways. Firstly, responses were judged on whether the answer was appropriate (a change from the first perceived emotion to the other) and secondly on the complexity of the answer, for example whether or not it contained any mentalising representations.

Responses in the emotional faces task were scored by the author and inter-rater agreement achieved between two raters. Initially a five-point scoring system was conceptualised, but this was reduced to four categories based on reliability scores respectively achieved with the first and second scheme. Throughout the reliability process the categories were re-examined and redefined in response to discussion between the two raters in order to achieve a scoring system which could be reliably be applied. In the original conception of the coding scheme a distinction was made between implicit and explicit expression of emotional states. However, it was considered that for the purposes of this study this distinction was not necessary and complicated scoring, making reliability difficult to achieve. Three revisions of the scoring scheme took place prior to reliability and discussion. The second reliability trial, using 40 items, achieved a Kappa of .72. Subsequent to discussion and revisions of the coding scheme a third reliability trial achieved a Kappa of .91 for 30 items. Combining the final two reliability trials a Kappa of .83 was achieved across 70 items. This was considered to be an acceptable reliability for this study. The original inter-rater reliability for the KAI-R as a whole was reported to be in excess of .80 for trained coders (Kusche, 1995). The final scoring scheme for Study 2 is presented overleaf in Table 33.

Score	Type of answer	Example
0	No answer – child simply re-states the two emotions OR Wholly inappropriate answer – unreasonable answer	Child restates emotions but with no offer of any reason, e.g. <i>“one is happy, one is sad”</i> Also in this category comments which refer to an emotional stance, but are little more than repetitions of that stance – i.e. for the ‘Sad’ boy, <i>“he is upset”</i> – which is little different from saying ‘he is sad’. Bizarre or nonsensical comments. OR child states an inverted valence change – e.g. gives emotions as ‘happy’ and ‘sad’ but states as reason a negative to positive change: <i>“he was sad and now happy”</i> or gives a reason not appropriate for the emotion - <i>“he found his ball”</i> for the sad face.
1	Physical answer – reasonable answer but with no emotional content EXPECTED FROM YOUNGER INFANT SCHOOL CHILDREN	Answer simply states a physical reason for the second emotion rather than referring to any process or the underlying mental state of the child e.g. <i>“he fell over”</i> for the boy or <i>“she got a present”</i> for the girl. Typically these answers offer MATERIAL reasons for the emotion – injury or reward, for example, which in themselves might bring about a very basic emotional response. Answer does not refer to any social situation – e.g. <i>“he lost his ball”</i> does not imply someone stole it, and would be a 1 – however <i>“someone stole his ball”</i> would be a 2 as it involves a social interaction and <i>“he was upset when someone stole his ball”</i> would also be a 2 as it refers to an emotional condition but not a transition. For a 3 it would need something like ‘he was playing then someone stole his ball’ (transition and 2 implicit emotions, happy/okay → sad/upset). (Comments like these offer no evidence that the child appreciates that a change has taken place, only that there is a reason why the face is either Sad or Happy).
2	Social or situational answer – reasonable answer and may have some basic emotional content EXPECTED FROM TYPICAL PRIMARY AGED CHILDREN	Answer alludes to a change resulting from social episode with emotional consequences, one emotional state may be referred to – e.g. <i>“his friend wouldn’t let him play”</i> or for the girl (Angry to Happy) <i>“glad her friends let her play”</i> , <i>“she made a new friend”</i> , etc. Also in this category comments which refer to an emotional stance, but are also a little more than repetitions of that stance in that they convey a reason for the stance – i.e. for the ‘Sad’ boy, <i>“he got told off”</i> or <i>“someone gave her an icecream”</i> for the girl. Answers can be simple (as above) or complex – e.g. <i>“her mother let her friend come to play.”</i> Answer can be complex (as above) or simple = e.g. <i>“he fell over and got upset”</i> – NB explicit emotional change – ‘got upset’. (Comments like these offer little evidence that the child appreciates that a change has taken place, only that there is a reason for the child being Sad or Happy – albeit a very age typical reason.)
3	Mentalising (reflective) answer – a reasonable answer and refers to a change in underlying mental state of the child either implicitly or explicitly. EXPECTED FROM OLDER, MATURE & PRE-ADOLESCENT CHILDREN	Answer specifies either explicitly or implicitly* a change in emotional tone. In other words, something happened to change the child’s mood & the mood is alluded to or referred to. MUST INCLUDE 2 STATES WHICH IMPLY EMOTION. For example: <i>“He thought the present was for him, but it wasn’t and he was upset.”</i> – *Implicit & explicit emotion here - child has given the transition as well as emotion/mood (expectancy → /upset/disappointment) <i>“She was feeling upset because one of her friends has been mean to her but then they made up”</i> . *Transition and explicit and implicit emotions (upset → okay/happy) (Comments like offer evidence that the child appreciates a change has taken place. They show that the child has an appreciation for the fact that situational or mental triggers can cause a change in the way the person feels.

Table 33: Response scoring for reasons for emotional change

6.2.2. Emotional Reasons: Analysis

In summary, children were presented with two sets of faces and required to 1) Give an appropriate emotion for each of the faces; 2) Give a reason why the emotion might have changed in each pair of faces. The first set of faces showed an ethnically non-white boy, in the first picture happy, in the second sad. The second set of faces showed an ethnically white girl, in the first picture angry, in the second happy. Participants were rated in several ways:

Firstly, scored on whether or not they gave an appropriate emotion for the facial expressions, where 3= the target emotion, 2= an appropriate emotion but not the target emotion, 1= an appropriate emotion but wrong valence (like 'sad' for an angry face) and 0= an inappropriate emotion with the wrong valence a score of zero.. These datum were treated as categorical.

Secondly, the response to the open question "if the feeling has changed, why might this be?" was examined in two ways: a) whether the reason given was appropriate to the emotions provided and b), the quality of the response was scored for sophistication and mentalising capacity. The mentalising categories were scored as: 0= no answer or wholly inappropriate answer, 1= physically based answer: no emotional or social content, 2= socially based answer: reasonable but with little emotional content, and 3= mentalising answer: sophisticated answer with implicit or explicit reference to emotional change (see Appendix 2b for examples of responses). These four categories were treated as ordinal data for analysis. Consistency between a children's abilities to find the target emotion and the sophistication of their responses to the open question on change was also measured.

An age effect was expected in this sample with younger children likely to give more physical answers and older children predominantly social and at times mentalising answers, in line with the social focus on peer groups. As girls were generally more verbally advanced across this age range, and effect for sex was expected.

6.3. RESULTS

Tables and figures supporting analyses in this section can be found in Appendix 2.12.

6.3.1. Judging Emotion in Faces

As can be seen in Figure 21 below, the majority of children chose the target emotion for each of the four faces. The face which gave the most variation in scores was 'angry girl', which incurred 28 inappropriate responses and 57 similar, but not target, emotional suggestions. The second female picture (smiling, happy) also attracted 38 appropriate, but non-target emotions, but again most children gave the target emotion.

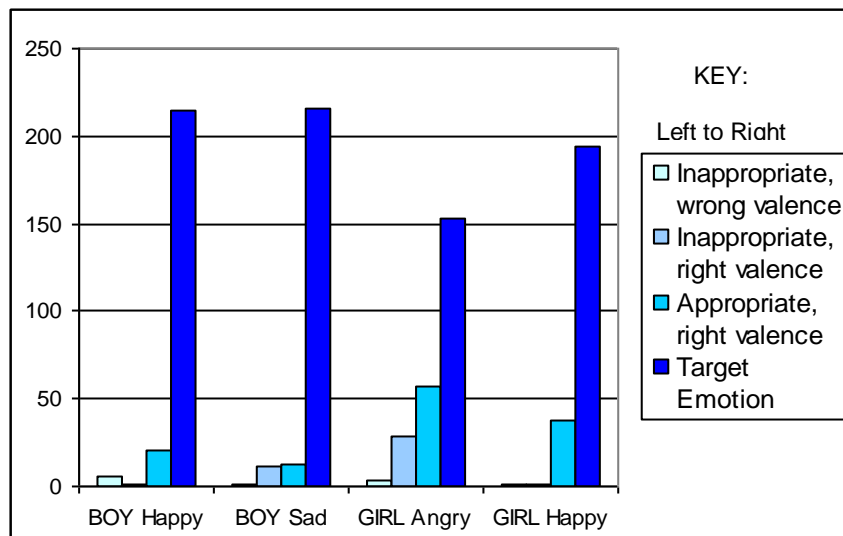


Figure 21: Emotional choice for typical sample

Looking at the abilities of the typical sample to correctly assess the emotion displayed on each face, mean values for choice for each participant were calculated. No sex ($p=.652$), ethnicity ($p=.73$) or age group ($p=.408$) differences were found overall for ability to correctly assess emotion. Examining ethnic groups separately, non-white children scored significantly higher for ability to correctly identify facial emotion than did white children, but only for the non-white presentation of Boy faces. Both Boy faces showed this pattern: Happy face $z=2.477$; $p<0.05$ and Sad face $z=2.297$; $p<0.05$. No significant differences were found between any of the emotional choices for sex or year at school.

6.3.2. Attributing Reasons for Emotional Change

As can be seen in Figure 22 below, the vast majority of children chose an appropriate, social reason for emotional change, particularly in the case of the Boy faces. However, the Girl transition attracted the most sophisticated responses: 57 mentalising reasons, as opposed to 28 for the Boy transition. Participants' responses were consistent across both questions: Girl reasons were significantly correlated with Boy reasons – $r_s=.493$; $n=236$; $p<0.01$. The maturity of Girl reasons for change correlated significantly with the ability to determine the target emotion for the first picture ($r_s=.139$; $n=235$; $p<0.05$) but not the second picture. Boy reasons for change did not correlate with the ability to determine an appropriate emotion for the faces, although the two facial choices did $r_s=.228$; $n=241$; $p<0.01$. Scoring for the emotion recognition task was highly consistent.

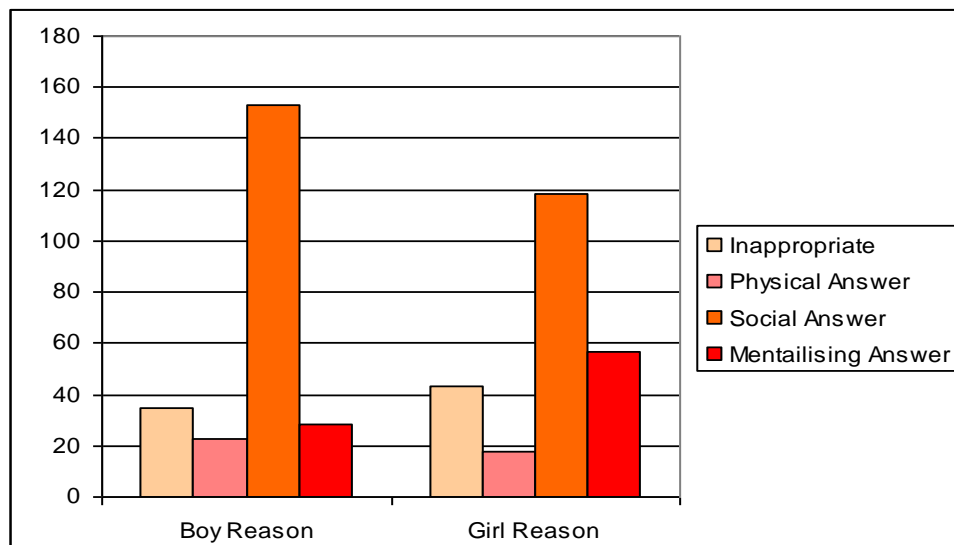


Figure 22: 'Reason for Change' in typical sample

Using Chi Square, a significant difference was found in the scoring patterns for both the Boy Reasons ($\chi^2(3)=195.60$; $p<0.01$) and Girl Reasons ($\chi^2(3)=91.90$; $p<0.01$) with children providing significantly more social reasons for change than other categories. Using Wilcoxon Signed Ranks test no significant difference was found in mean scores of ratings by the whole sample of Boy and Girl reasons ($z=0.815$; $p=.415$; mean difference 0.07).

There was no significant difference in how males and females rated the Boy or Girl reasons for change; or how White and Non-white children rated each of the transitions. A significant difference was found between Age Groups for sophistication of reasons: Boy Reasons $z=4.57$;

$p < 0.01$, Girl Reasons $z = 5.67$; $p < 0.01$. For both sets of pictures, older children (years five to six) scored higher than younger children (years three to four). Children in early years are giving less social and mentalising reasons but more inappropriate and physical answers than older children, as is illustrated in Figure 23.

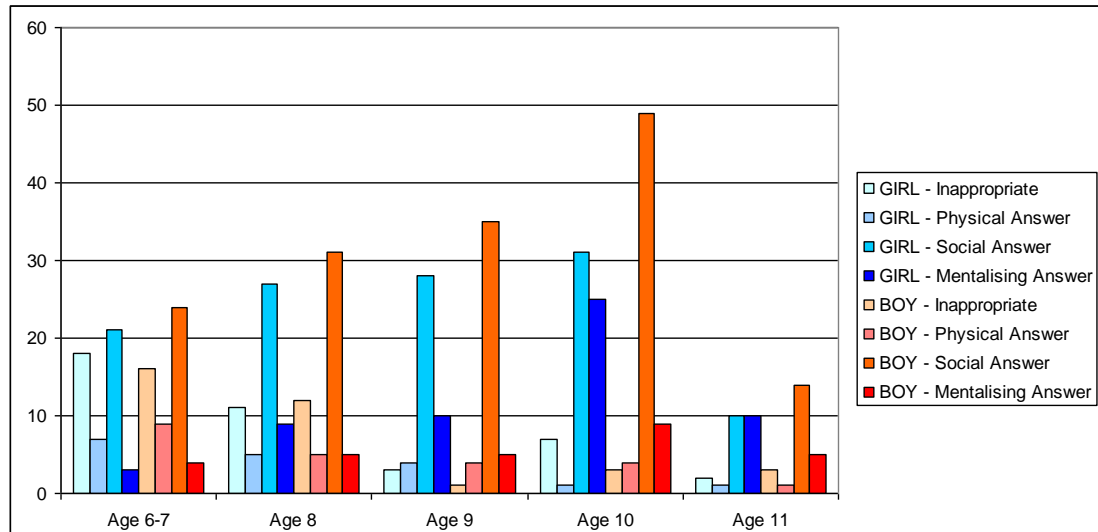


Figure 23: Quality of 'Reasons' showing developmental pattern.

Numbers of children were very small for the 11 age group, but the pattern of predominantly social and mentalising answers was still observed, as compared to younger children. Reasons; become more sophisticated with age: Boy Reasons: $\chi^2(5) = 26.134$; $p < 0.05$, Girls reasons: $\chi^2(5) = 37.409$; $p < 0.01$. MANOVA was used to explore a possible interaction effect between age and another variable responses for Girl and Boy reasons. A main effect was found for Age, with no interactions with other categories. A main effect was also found for ethnicity, with White children giving more sophisticated answers than Non-white for Girl Reasons only ($F(1,226) = 6.650$; $p < 0.05$; mean difference 0.20). As the Levene statistic was highly significant and continued to be so even after transformation of the data using square root, a Kruskal Wallis was conducted which found no significant difference between ethnic groups in rating of boy or girl postures, suggesting any apparent significant difference was due to inequality of sample sizes. A possible interaction between sex and ethnicity of participant and stimulus was also examined. For male participants alone, there was no difference in rating of Boy or Girl reasons; neither was there any difference in how females rated Boy or Girl reasons. Considering ethnicity, there was no difference in how white children rated either white or non-white faces, or in how non-white children rated white or non-white faces.

6.4. DESIGN CONSIDERATIONS: VALIDITY OF THE TEST

Establishing a reliable scale and criteria for the rating of the reasons for emotional change proved a long and challenging process, but eventual reliability between the two raters was high and a scale established that could be used on future occasions to explore the ability of children to assess and explain the process of emotional change. The wording of the question had been left deliberately simple to encourage the child to give their most natural response. Some of the comments children did make, considering the simplicity of the question, were quite profound. A supplement of vignettes illustrating the range of response and scoring thereof can be found in Appendix 2.4.

In order to give a cohesive account of the findings of this study and the comparative study using children with severe behavioural problems, the main assessment of this study can be found in the Discussion (Chapter 9).

CHAPTER 7: STUDY 3: APPRAISAL OF EMOTIONAL TRANSITION IN FACES

7.1. INTRODUCTION

The previous two studies examined the appraisal of emotion in pictorial images of another child in typically developing children in middle childhood and their ability to differentiate emotion and give a reason for emotion change in facial expression. This thesis aims to examine whether children with severe behavioural problems are more likely to attribute negative or hostile intent in their appraisal of others and in addition whether their mental state thinking in appraising emotional change is age appropriate or atypical. Any hostile bias observed in these tasks may be linked to over-sensitivity in the perception of anger and therefore be part of an unconscious process rather than a cognitive evaluation. In order to test this hypothesis, a measure was required to examine whether children detected the appearance of some emotions in facial transition sooner than others, or if some emotional expressions were dominant over others in the perception. The response of typically developing children to this transition between emotions could then be compared to the responses of children with severe behavioural problems.

This introduction will give a background to the theory of recognition of emotion in faces and research evidence of developmental aspects. It will then explain the concept of measuring transition in emotion, consistency and hysteresis. Finally, it will outline evidence for a threat detection mechanism in viewing angry and fearful faces.

Developmental and sex-related patterns in the discrimination of emotional change in faces were examined using a dynamic interpolation that simulated the movement from one emotion to another using a series of photographic images. Two processes were investigated: 1) the measurement of consistency in the recognition of emotional change and 2) the comparative persistence of different emotions in the perception. The profile of typically developing children in both these aspects of response to emotion transition will be compared to that of children with severe behavioural disturbance in Study 4.

7.1.1. The Perception of Emotional Change

Following Darwin's early documentation of facial expression in humans and animals (Darwin, 1899) in which he noted a correspondence in facial expression between cultures, the originally controversial work of Ekman and colleagues (Ekman et al., 1987) showed basic emotional facial expressions are universally recognised in adult populations. However, although there is evidence that very young infants have an appreciation of emotional tone in facial expression, appreciation of the full repertoire of facial affect is not acquired until some time between the first and third year of life. Competence in identification of facial emotion improves with age; particularly in distinguishing between similar emotions, such as anger and disgust (Izard & Read, 1986). Although it has been suggested that children with behavioural problems are more likely than their peers to show deficits in emotional understanding (Kusche, 1995; Izard et al., 2001) they seem equally competent in the recognition of facial affect (Ellis et al., 1997). Children and adolescents with behavioural problems have been found to be equally as good at recognising the six basic emotional expressions of joy, anger, disgust, surprise, sadness and fear as their peers; differentiation improved only with age. Ellis et al. (1997) caution that it cannot be assumed from this outcome that children with severe SEBD (the children in the study were under clinical care) have no deficits in social skills, only that this does not extend to recognition of facial emotion.

In a typical study of emotion recognition pictures of real or schematic faces are presented for categorisation. These faces are generally static and representative of a discreet emotion, as in photographic pictures (Ekman et al., 1987; Ekman, 2003), with symbolic representations: for example using masks (Aronoff, Barclay & Stevenson, 1988), or with schematic faces. Ambiguous angry faces have been labelled as sad by depressed participants (Bouhuys, Geerts & Gordijn, 1999; Geerts & Bouhuys, 1998) using schematic presentation as stimuli. Discreet changes of eyebrows and mouth in otherwise static photographic faces have been used to ascertain which cues are employed by autistic spectrum children in the identification of emotional change (Black, Ropar & Mitchell, 2007). It was found that children used both eye and mouth cues in discrimination of change. Static morphed images have been used to investigate accuracy and reaction time of adults in the identification of an emergent emotion from an interpolation of two emotional faces (Young, Rowland, Calder & Etcoff, 1997). Even when the interpolated image was unrecognisable as a discreet emotion, participants showed a good awareness of which emotions had been blended, an indication, according to Young et al (1997), of good categorical perception for emotion. Indeed, categorical perception of emotion has been seen in babies as young as seven months, who demonstrated discrimination of static

interpolated images of fear and happiness in a visual preference task (Kotsoni, de Haan & Johnson, 2001).

Moving faces (videotaped displays) have been found to provide an advantage compared to static displays in tests of facial emotion recognition amongst mentally retarded adults (Harwood, Hall & Shinkfield, 1999), indicating that dynamic facial displays may prove an advantage over static faces in achieving optimum results in tests of facial emotional awareness. Dynamic morphed¹⁴ displays have recently been used to examine the ability to determine the transition between one emotion and another in adults (Joormann & Gotlib, 2006). Here the presentation of faces took the form of an automated generation of morphed transitions at intervals of 500 milliseconds with instructions to participants to stop the display when they thought an emotional transition had occurred. The participant was then asked to select from a fixed choice alternative the emotion they thought was appearing. In this way the study examined a basic ability to discriminate discreet emotions as well as to identify a point of transition.

This study used a similar process with children but removed the time restriction and involved the child in an interactive process where the child changed the facial expression frame by frame from one affective position to another. The child then decided upon a point at which they felt unable to discriminate between the two alternatives. This was an important modification in design. A time-restricted presentation would have favoured children who could rapidly identify emotional expressions and or who had good motor responses. The aim of this study was not to challenge the child's ability to differentiate emotions per se, or see how fast they could react to a visual stimulus, but to examine how strongly the representation of emotion must be displayed for the child to become aware of that emotion emerging. This involves the child understanding the subtleties of facial emotion. In addition, this study provided the child with the labels for the two emotions to be morphed at the outset, rather than the child having to guess the emotion which appeared from fixed-choice alternatives. This had the advantage that the child could indicate the moment they observed that a transition was taking place (that it was no longer the originating emotion) rather than when they could identify the target emotion. Allowing the child to move backwards and forwards through the interpolation to identify the point of transition meant that any differences in the distance into the interpolation before the transition

¹⁴ Morphing is a computerised technique using a graphics software package that creates a smooth, controlled transformation of one image into another. Short for metamorphosing, morphing refers to an animation technique in which one image is gradually turned into another by the distortion of corresponding points across a sequence of frames. The morphing effect is widely used for various tasks including mixing faces from photos – for example a tiger face blended with a woman's face to create a chimera of the two, or one facial expression changed to another over a series of transitions.

was identified were more likely to be due to the emotion itself rather than reaction time responses.

Using an interpolation of a discrete number of frames rather than a video allowed examination of how early in facial change the child could discriminate, for example, the onset of anger from a neutral or happy face. No time limit was envisaged for this exercise and the ability to label the emotion was not a factor. For this purpose an in-house computer programme was used which will be referred to as 'MORPHO'.

7.1.2. Persistence of Emotion: Consistency and Hysteresis

Consistency, as measured in this study, refers to the ability of children within a population (and with considerations of sex and age) to choose a consistent point of transition in repeat administrations of MORPHO, and is a reflection of the internal reliability of the measure. Hysteresis, at its most basic, is the delay or perceptual lag between an environmental change and a behavioural or conceptual shift, as in the study of motion perception (Hock, Bukowski, Nichols, Huisman & Rivera, 2005). Perceptual hysteresis has been described as the "persistence of a percept despite parameter change to values favouring the alternative pattern" (Hock, Kelso & Schöner, 1993). From a psychological perspective hysteresis can be examined as either an ongoing process of adjustment to the environment (developmental or social for example) or as a response to a discrete change or onset (visual or aural, for example). In the latter case hysteresis is often measured in response times (milliseconds of delay in the stimulus/response equation); for example as an action response to a visual stimulus flashed before a participant in a laboratory setting (Hock et al., 2005). Different measures of hysteresis may occur because of a processing delay of some kind, which may be related to the nature of the stimulus or priming. In terms of conditioning to a new stimulus, hysteresis may be a few moments or a few days and differences in hysteresis between participants would generally be connected to past experience or past consequences. In the case of developmental psychology, hysteresis may be a process of days or years as a pattern of behavioural responses adapts to alterations in the environment and new information (Fischer & Pare-Blagoiev, 2000). Hysteresis, as conceptualised in this study, is a measure sensitive to variation in response due to the nature of the stimuli.

Hysteresis is also examined in visual picture transitions: pictures which can, if viewed differently, be perceived as more than one form. Hysteresis here would be measured as the

delay (or lag) between only being away of one form to being able to see the second form appear. Probably the most famous of these images is that of the young girl who transmogrifies into an old woman (see Figure 24 below). Famously known as the illustration which first appeared in the Puck humour magazine drawn by Hill in 1915, this drawing has become one of the most popular of visual illusions (Weisstein, 2002). A viewer would perceive the figure to be either a young or an old woman and gradually come to see the opposing view.



Figure 24: Hill figure



Figure 25: Earliest known version

This time taken for the process of realisation will vary according to the past experience of the viewer. Having seen and understood this transition, hysteresis on observing the original drawing (see Figure 25 which shows the image found on an anonymous German postcard from 1888; Weisstein 2002) would be shorter than had the viewer never been in contact with Figure 24.

This process was also examined using a transition where a man's face was altered over a sequence of eight frames into a seated young woman (see Figure 26), using an illustration popularised by Attneave in 1971 (Stewart & Peregoy, 1983). As part of an examination of catastrophe theory, Stewart and Peregoy (1983) observed that the point of recognition (or cusp of recognition) varied depending upon the starting frame: whether the transition was viewed first from the figure of the man's face, or first as the seated young woman. This discrepancy, or hysteresis effect, has been frequently viewed in psychological models.

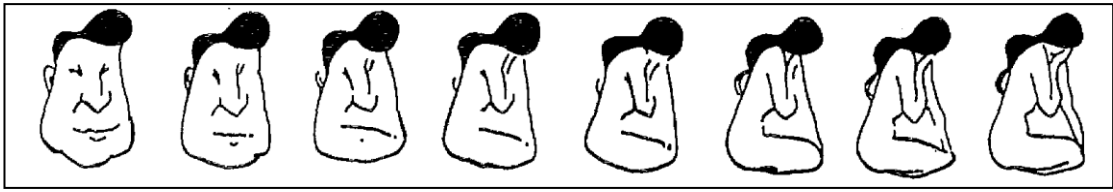


Figure 26: Attneave Illustration – man's face to seated woman (Stewart & Peregoy, 1983)

In visual models, such as the one above, the point at which the second image is perceived as emerging depends to some extent upon the persistence of the original image in the perceptual eye of the beholder. This is an aspect of the transition of emotion in facial affect that Study 3 aimed to explore. It is known that some emotions are more dominant in the perception than others as they are recognised sooner than other emotions from a visual display (Mather & Knight, 2006). During the process of transition to another emotion, using a morphed display, it can be reasonably postulated that a dominant emotion will be retained longer than other emotions, as in other aspects of perceptual shift (Hock et al., 1993). For example (as shown below in Figure 27) in a morphed interpolation of fear to happiness (see Method section for a description of this process), as compared to sadness to happiness, fear may be retained longer than sadness. If this is the case it may indicate that fear is a more dominant emotion perceptually than sadness.



Figure 27: Sequence of interpolation of facial emotion: sad to happy and scared to happy

Arguably this technique made it possible to observe hysteresis in certain transitions, as children saw each transition from both angles (see Figure 28). If, for example, children first view the happy/sad continuum from the point of sadness, the mean point at which they are no longer sure that the figure is sad, but perceive happiness in the face, may be different from the mean point at which (when viewed first from the point of happiness) they first recognise sadness as appearing.



Figure 28: Comparative interpolation of sad to happy and happy to sad

However, as this study examined several emotional transitions, including those from the neutral face to a valenced emotion, it was considered more theoretically sound to refer to variations in the point of transition identified dependent upon emotions displayed as due to ‘the persistence of a specific emotion in the perception’ rather than hysteresis. This could answer the question as to whether some facially expressed emotions are more readily recognised or detected than others; specifically emotions linked to threat, such as anger or fear. Establishing a pattern of responses for typically developing children in Study 3 was designed to allow a comparison of response to different emotions in children with severe behavioural disorder in Study 4, including any disparity in the viewing of anger or fear stimuli.

7.1.2.1. Bias in Response to Facial Emotion

An important consideration in examining the response of children to emotional transitions is whether there is any evidence of processing bias when viewing transitions to or from possible anxiety-provoking emotions. It has been well established that anxious individuals exhibit a general cognitive bias when compared to non-anxious, in that they are more likely to interpret an ambiguous situation as threatening (Eysenck, Mogg, May, Richards & Mathews, 1991). This effect has been found to occur in many personal and environmental situations and includes the interpretation of spoken media (Eysenck et al., 1991); where anxious participants provided threatening rather than neutral interpretations of ambiguous sentences. This is posited by Eysenck et al (1991) to occur at a ‘preattentive’ stage of processing and to reflect a perceptual bias due to an anxious mood state. For example, an anxious participant was more likely to interpret the sentence “*At the refugee camp, the (week/weak) would soon be ended*” as meaning “*At the camp the sick would soon be dead*” as opposed to the non-anxious interpretation of, “*At the camp the weekend had nearly arrived*”. Listening tasks have also provided evidence that high-anxious individuals will show a selective attentional bias, for example attending to the ear to which a threat-related word (like ‘grave’) is presented as opposed to the non-anxious, who do not exhibit this bias (Derakshan & Eysenck, 1997).

Depressive bias has also been well documented. Depressed persons attend more to negative aspects of their surroundings than non-depressed (Joormann & Gotlib, 2006) and make more errors labelling facial expressions (Persad & Polivy, 1993). Indeed, mislabelling schematic faces as 'sad' is a good predictor of the persistence of depression in recovery (Hale, 1998), although it was not clear whether this was related to depressive bias or a deficit in ability to label emotional expression due to depressive mood state. In an activity using 'moving' sequences of morphed Ekman faces, depressed participants were asked to identify the point of transition from neutral to emotional faces (Joormann & Gotlib, 2006). Participants with major depressive disorder (MDD) required less intensity of expression to label sadness than both the socially phobic (SP) or control group and a greater intensity to distinguish happiness. The same effect was found for SP participants, but in relation to faces of anger.

An increased interest in media indicating threat has been well demonstrated in the general population as well. Adults will be faster at detecting an angry face in an array of neutral faces than other emotions such as happy or sad (Mather & Knight, 2006); this effect was found regardless of the age of adults. Older adults show 'positivity bias' in that they focus more on positive aspects of an emotional scenario than do young adults (Kennedy, Mather & Carstensen, 2004). This is regardless of time of day, which has been known to affect speed of processing (Mather & Knight, 2006). This phenomenon is considered to be an evolutionary bias, a 'threat-detection' effect. Indeed, early detection of threatening stimuli is thought to provide a survival advantage by allowing for a rapid response and has been demonstrated widely in humans and monkeys (Öhman & Mineka, 2001) in the response to fear evoking stimuli including the presence of anger in facial expression. This is thought to be a rapid alerting system for threat modulated by the amygdala; an automatic response mostly inaccessible to cognitive control.

Using symbolic faces, (Elaine Fox, Russo & Dutton, 2002) found participants' response times to a subsequent task were delayed when primed with an angry face as opposed to a happy or neutral face, showing a delay in the perceptual shift to the following task due to delayed disengagement. This was expected to be the case in anxious individuals but was observed in all participants. Fox subsequently suggests this effect may be moderated by state anxiety rather than trait anxiety (Fox, 2002). In non-anxious individuals, however, a significantly faster and more accurate detection of threatening (angry) faces from an array of both neutral and other emotional faces has been found, including from other negative faces (Öhman, Lundqvist & Esteves, 2001), suggesting threat detection is indeed a universal phenomenon. Accuracy and Reaction Time tests (Kestenbaum & Nelson, 1992) with seven-year-old children and adults using event-related potential (ERP) identified that children respond differently than adults to the

presentation of angry and happy faces: more dramatically (showing greater P300 amplitude) to the presentation of angry faces than adults, whereas adults responded similarly to only happy faces. Accordingly it was expected that children in this study would be comparatively more sensitive to the appearance of anger than of happiness in emotional transitions.

The function of a threat-detection mechanism may go beyond a bias for anger alone; an effect for presentations of facial emotion showing fear has been found in babies as young as seven months of age: babies showed persistent interest in faces representing fear (including interpolated faces) in preference to faces representing happiness (Kotsoni et al., 2001). It has been postulated that a specialised neural system underlying the differential processing of fearful faces is present from early infancy (Leppanen, Vogel-Farley, Moulson & Nelson, 2007) and explains the perceptual bias for fear, which appears less evident adulthood. Fear in others may prompt the same mechanism for detecting danger in the environment as fear-inducing stimuli (LeDoux, 1994). Subsequent research with university students using angry and fearful faces (Fox, 2002) found perceptual bias for fearful faces in high trait-anxious individuals, but not in low anxious individuals.

7.1.3 Overall Aims of Study 3

Study 3 examines the consistency in response and the persistence of specific emotions in TD children. It was expected that most typically developing children of this age range would have a fairly good understanding of emotional transition and a good awareness of emotional change. A general threat-detection effect might be found with participants where anger is detected sooner than other emotions in a transition; conversely anger may remain the dominant emotion for longer in a transition involving an interpolation away from anger. As a sample of typically developing school children would not be expected to be classified a high-anxious population, it was not expected that any effect for recognising fear in faces would be found. However, bearing in mind the work by Kotsoni (2001), as the population in this study contains young children it was possible that some effect relating to fear would be found. Using a performance measure such as MORPHO to examine the perception of the appearance of anger and fear usefully adds to this research area.

7.2. METHOD

This study used an interactive process whereby one facial expression of emotion was morphed into another by the child across a series of frames, simulating the appearance of movement.

7.2.1. Design and Preparation of Materials

MORPHO was constructed using Microsoft Visual Basic 6 and conceptualised initially as an adult measure, the faces portrayed being all adult. It was tailored for this study to be appropriate for children aged seven to 11 using simplified instructions, a basic interface and a limited set of transitions. It was enhanced to self-load and run on any Windows-based operating system and to save small discrete data files for research purposes. The programme can be found in Appendix 5.3. MORPHO was designed to be administered in two sessions. The advantages of this were two-fold. Firstly, each session was kept to a reasonable length to avoid the child's attention deteriorating. Secondly, it allowed each emotional transition to be presented from a different direction during the second session. For example, a facial expression presented initially as 'happy' and morphing into 'sad' on session one would be displayed as 'sad' to 'happy' on session two. This procedure enabled the measure of consistency in determining the point of change and difference in the persistence of each emotion in the perception when paired with other emotions. This in turn provided a means to identify whether children were less reliable in determining certain emotional transitions than others and whether certain emotions were more persistent than others (i.e. were retained longer in an interpolation before change to another emotion was appraised). In order not to overwhelm the child with too many transitions in one session, it was decided to restrict emotional transitions to 13 in the main part of the test, plus three practice transitions.

7.2.1.1. Choice of Stimuli

MORPHO stimuli were photographs of adult actors. All faces used were posed rather than spontaneous, but created naturally rather than by complex instruction (as with Ekman faces). Nine male and 11 female adults were photographed having been asked to express common emotions: happy, sad, angry, disgusted, surprised and scared and in addition a passive, or

neutral, ‘expressionless’ face¹⁵. Of these adults five male and six female actors were chosen to provide the final stimuli for MORPHO as their expressions were deemed distinct enough at the two extreme points of emotion to allow easy recognition of the emotion in question. In addition the positioning of the head/face made it possible to morph (transform) one expression into the expression over 11 frames. Morphing was done with a proprietary morphing package by 1) identifying a number of equivalent points on the two images (for example the tip of the nose, outer corner of the eyelid); 2) converting one facial expression into another in a series of discreet steps by interpolating between the start and end points of the features selected and 3) blending the remainder of the features to make the transition look as smooth as possible.

For each MORPHO stimulus two faces were chosen which represented distinct emotions (or one emotion and a neutral face) and the first facial expression was ‘morphed’ with the second over a series of 11 frames as shown in Figure 29 below. The software merged the two images in increments of 10% to form the continuum of 11 frames. As can be seen in this figure the model is closer in the second emotion, having moved towards the viewer in a threatening manner in the expression of anger and this movement, along with the facial features, has been interpolated smoothly by the morphing software. All 16 transitions prepared can be seen in Appendix 3.4.

At the central point between the two emotions they are blended; the expression provided at this central point is an amalgamation of the two emotional expressions.

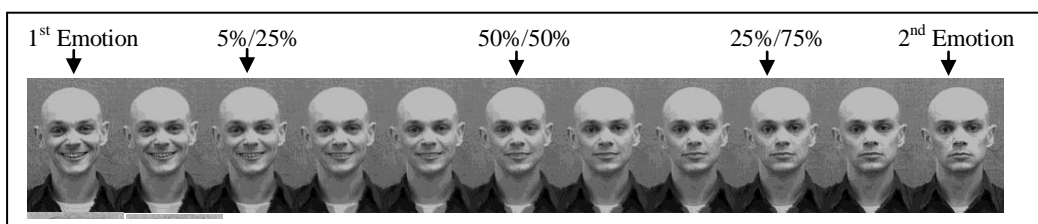


Figure 29: Transition from happy (positive emotion) to passive (neutral emotion)

This process allowed discreet but measurable steps between facial expressions, which in turn facilitated quantitative analysis. Two main principles guided the choice of emotional transitions to display: 1) transitions deemed as ‘likely’ or comprehensible and 2) emotional transitions have been proven delineators of ability to determine emotional change.

¹⁵ Thanks must be conferred to Anne Richards of Birkbeck University, London, for the provision of the emotional photographs used in this study.

7.2.1.1.1. Comprehensible transitions

As participants in this study were junior aged children it was considered important that the emotional transitions had some possible basis in understandable human reactions; in other words they were logical emotional transitions with a comprehensible emotional script. For example, it was deemed comprehensible that a person might move from being 'Angry' to 'Sad' (by contemplating loss after an event) and correspondingly the person may have been made Sad by an event only to realise they were also Angry it had happened, so this transition was included in MORPHO. However it was deemed to be unlikely or incomprehensible for a child that in a single emotional transaction a person would move from being 'Disgusted' to being 'Surprised', so this transition was not used. In the same way the transition of 'Happy' to 'Sad' was thought to be reasonable and comprehensible but the transition of 'Happy' to 'Surprised' would not as the emotions are too closely related.

7.2.1.1.2. Common transitions

The emotions Happy, Sad, Scared and Angry were considered to be the most crucial to be explored as they have been the most commonly used in research as delineators of ability to differentiate emotion, for example in comparing the ability of autistic spectrum children to distinguish facial emotion in comparison with typically developing (Baron-Cohen, Wheelwright & Jolliffe, 1997). These emotions were therefore prioritised leading to few transitions involving Disgusted or Surprised. All six emotions were used in conjunction with a calm 'neutral' face, which was labelled for the children as 'Nothing Much'. It was important to examine whether children found it easier to discern the appearance of a valenced emotion from a neutral base (such as anger from nothing much), from a similarly valence emotion (such as the scared to angry transition) or from oppositely valenced emotion (such as a happy to angry transition). The emotion 'Scared' was important because of the possibility of a threat detection mechanism. Because children with behavioural disorders in Study 4 could well have an issue with anger, 'Angry' transitions were of particular interest. Happiness and sadness, as polar opposites, were paired in addition with neutral emotion and each other. Disgust was limited to neutral face transitions.

This procedure produced 26 transitions in all: two sessions of 13 transitions. All pictorial stimuli for MORPHO (showing frame by frame transitions) and the transitions for three practice trials are shown in Appendix 3.4. Of the three practice trials, two were male faces and one female. Of the 13 transitions for analysis, five used male and eight female faces. These are indicated on Table 34 overleaf.

MALE FACES	FEMALE FACES
Angry – Sad	Angry – Happy
Angry – Scared	Angry – Neutral face
Scared – Sad	Scared – Happy
Happy – Neutral face	Scared – Neutral face
Sad – Neutral face	Scared – Surprised
	Happy – Sad
	Surprised – Neutral face
	Disgusted – Neutral face
All transitions also presented in reverse	

Table 34: Emotional transitions used in MORPHO showing sex of model

The three practice transitions were: ‘Sad to Disgusted’ (male), ‘Scared to Surprised’ (male) and ‘Sad to Surprised’ (female). One of these, ‘Scared to Surprised’ was thought to be important enough to include again in the main activity, this time using a female model. Although it would have been a possible benefit to have equal numbers of male and female faces in the activity, the models available had been limited by how representative their facial transitions had been judged to be.

It is important to note that along with the randomised presentation of stimuli (see design of interface, below) the start point for emotional transition varied in each session; for example in the first session with a ‘disgusted to neutral’ facial transition there might be a start point of extreme emotion (very disgusted) whereas on the second session the start point would be near the neutral expression (somewhat disgusted). As can be seen in Figure 30 below, the interface presented each emotion one position away from the extreme point. In other words the face was not fully disgusted or fully angry (in the case of the two displayed below) on first sight. This was to encourage the child to interact with the face in order to explore the emotion.

7.2.1.2. Interface of MORPHO

The MORPHO interface was a single screen presentation (Figure 30) with a slider to change the facial expression which was manipulated by two keys on the keyboard. As the child tapped designated keys the face would be morphed slowly from one emotion to another in accordance with the key strokes. There were 10 stages for each morphed transition. To the right of the face on the screen was a large screen ‘button’ with the words ‘Can’t Tell’ (Figure 30) which the

child was to use the mouse to 'click' when they were unsure about the emotion expressed by the face.

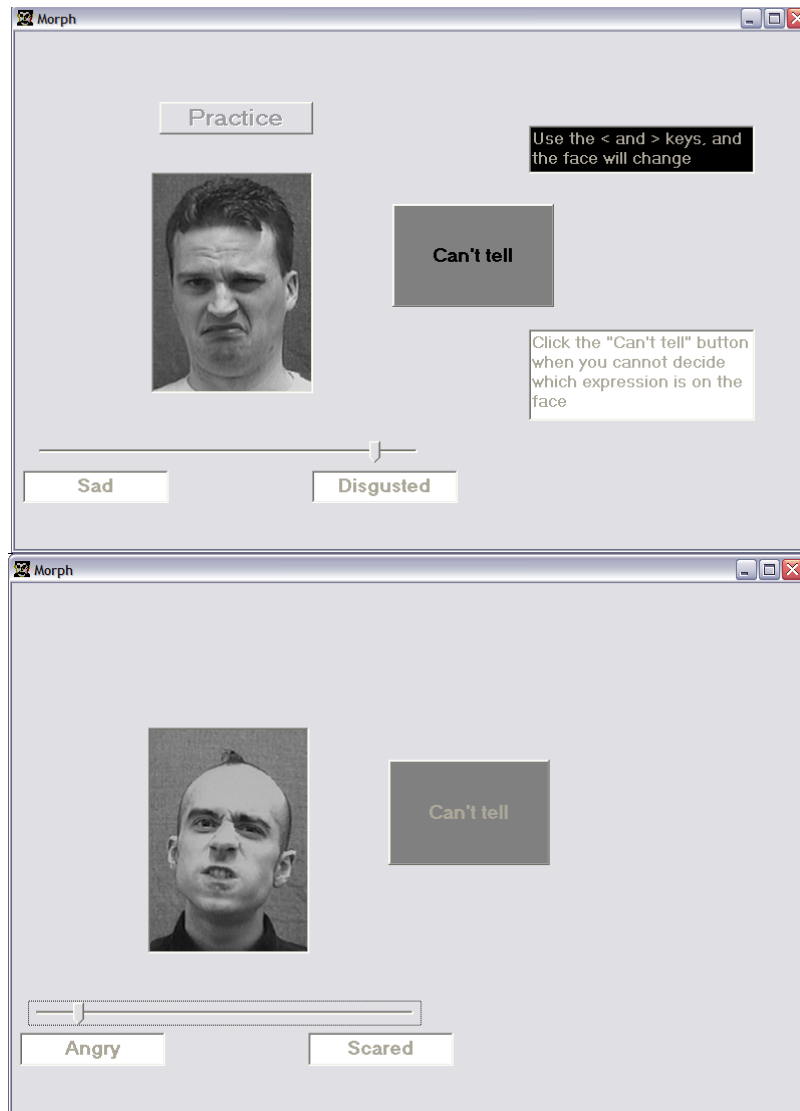


Figure 30: MORPHO practice screen (above) and test screen (below)

The first three screens were practice screens with additional information about the functioning of MORPHO. These were designed to familiarise the child with the MORPHO interface and allow the child to ask any questions before the main activity began. At the end of the practice session a pop-up box asked the child if they were happy that they knew what they were doing and wanted to continue with the main activity.

MORPHO was designed to be as robust as possible and extensive attempts made to ‘break’ the software before it was released for use. It was not possible to select the ‘Can’t Tell’ button before engaging with the interface and changing the facial expression, thus avoiding the possibility of the child missing out one of the transitions by clicking in error. Although the slider could be moved by the mouse, this did not change the facial expression or allow the child to select that position as their point of uncertainty.

The facial expression did not respond to the cursor keys or mouse and only showed movement when some deliberate adjustment was made; when one of the arrow keys had been used. Using erroneous keys had no effect on the interface. The child was not able to proceed without using the correct < and > keys and seeing the picture change. The child was encouraged to use two hands to manipulate these keys - the left hand for < and the right hand for > and remove their right (or left) hand from the keyboard to position the mouse and ‘click the button’. Pressing the ‘Enter’ or any other key would not substitute for the mouse click. The child could only move to the next transition by clicking the mouse in the right place on the screen.

There was no time limit for MORPHO so the child could manipulate or study the face for as long as they liked before making a decision. Presentations of the thirteen transitions were fixed by the package for each participant and randomised between participants. On second activation MORPHO would present the same thirteen transitions but from different starting positions. Again the order of the transitions was randomised. At the end of the activity a series of screens asked the child’s opinion about the activity. This was designed to 1) enable the child to give some feedback on how they felt about the activity without any pressure and 2) inform the author of how easy or difficult children thought the task to be. The screens and questions offered to the children can be seen in the Procedure.

7.2.2. Participants

The population for Study 3 comprised 92 typically developing primary school children aged between seven and eleven, with a mean age of 9.09 and standard deviation of 1.16. Of these 40 were boys and 52 girls. All children were attending a mainstream school in the London area. Group sizes for ethnicity were disparate with only two African-Caribbean and seven Mediterranean and Turkish children. It was decided to combine these two with ‘other’ for analysis, giving 51 ‘White’ and 41 ‘Non-white’ children in two groups.

7.2.2.1. Ethical Issues

As with any study, ethical considerations regarding privacy, information and risk to the participant were considered (see Appendix 3.1). All materials presented to parents and children were agreed with the head teacher of the school and a copy of the MORPHO software was provided for his scrutiny. Children to be included in the study were those whose parents had returned completed consent forms to the class teacher or school office (see Appendix 3.2 for all consent materials). As the author was to personally administer the test with the help of a colleague, consent from children was obtained by the author and assistant in the school IT room prior to the activity taking place and after the study and principles of consent had been explained to them. Any further questions were handled by the author and assistant. Demographic information required for each participant (special needs status and ethnicity) was provided by the school secretary with reference to the list of children who had taken part in the study. This information was then matched to the ID number of each participant.

7.2.3. Procedure

The entire test was performed using a computer screen, keyboard and mouse. Pens and consent forms were provided for each child, as were individual laminated cards showing controls for the programme and giving examples of changing faces (see Appendix 3.3). MORPHO was administered in groups using the school IT suite of 10 computers (Figure 31). Testing groups were based on class registers: making 13 groups in all. As far as possible children were sorted into year and class groups which not only made the task of organising the children easier, but meant they were put at ease by being with their peers. Year three children naturally required more explanation as to how to fill in the consent form than did year six children.



Figure 31: Administration of MORPHO within an IT suite

Software was installed prior to the arrival of children and the author assisted by another researcher known to many of the children. Children from whom parental consent had been obtained were collected from their classes¹⁶. the study briefly explained and consent forms read and signed by those happy to proceed. Information cards were and read through by the author and children asked to identify facial expressions thereon. The author demonstrated the keyboard and package interface on an overhead screen before children entered the programme and any questions were asked. A unique numerical filename was required at a prompt, which became the child's ID number, previously allocated to participants. A chart was kept of each ID number, where the person was sitting (computer number) and the time and group of the session, to facilitate an accurate second session of MORPHO. The practice stage of three transitions further familiarised children with the interface and controls and children were encouraged to ask questions. Keyboard keys < and > manipulated the faces and the mouse was used to select 'CAN'T TELL' when the participant was uncertain as to what the person was feeling. A screen then asked if they understood what they were doing and were happy to continue to the main activity. At this stage children were asked to work quietly by themselves, in their own time, for the 13 facial transitions, at the end of which a series of feedback screens asked for their opinion of the activity (Figure 32 below).

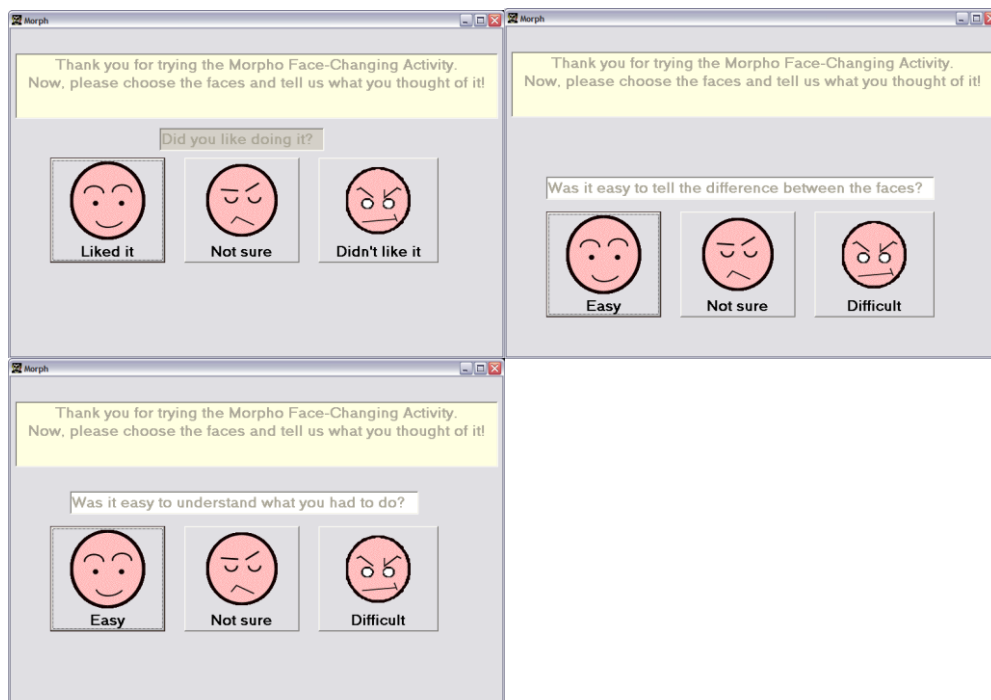


Figure 32: Feedback screens for MORPHO

¹⁶ It was important to be organised about the allocation of children to groups and to computers. Times of sessions were also recorded in order to make sure that no confusion occurred when the children returned at a later date to the same computer to retrieve their file for the second session.

Following this, children were thanked for their participation, asked to remember their position in the room and told they would be called shortly for a second session. Return sessions were organised such as to give children the same approximate period between administrations and incorporated the same groups where possible. The programme was again demonstrated and participants assisted to log in to MORPHO using the unique ID number. The interface for MORPHO gave the same three practice transitions, but emotions were presented in a different order and from the alternative starting point. The presentation of stimuli was randomised by the package across all participants and in both sessions.

No specific debriefing took place after administrations as it was not deemed necessary. Any questions or comments were addressed at the time of testing. As MORPHO utilised a three-part question section asking for feedback from the child (Figure 32) using the same choice of smiley/unsure/grumpy faces as in previous studies, this was considered adequate.

As this type of activity had not been presented to school children before it was difficult to predict what the response would be and it was considered important to examine children's feelings about this as part of the activity itself. During the course of administration the occasional younger child (generally aged seven or eight) did have some difficulty understanding how to use MORPHO. If this occurred and a simple explanation failed to help, a series of prompts were used by the author which included (rarely with this sample) taking over the interface whilst talking to the child to enable them to observe and think about the process. Details of these prompts, in considering the handling of the interface, can be found in Chapter 7.2.3.

Responses were measured in two main ways: 1) consistency in the recognition of emotional change (including any variations due to age or sex of participants) and 2) comparative persistence of different six emotions in the perception. Here a possible interaction between sex of stimulus and participant was considered, as was the age of the child. This included persistence of different types of emotion, for example negative emotions (sad, angry, and fearful) as compared to positive emotions (happy, surprised¹⁷).

¹⁷ Although surprised may be viewed as an ambiguous emotion, as one can have a bad or good surprise, as the expression is not overtly negative it is counted in this study as a positive emotion.

7.2.4. Scoring and Data Analysis

The value assigned to frame chosen on the interpolation, numbered from zero to 10 on each session, were considered Raw scores. This numerical value was used to calculate consistency between sessions, but did not reflect the child's sensitivity to the appearance of specific emotions, as can be seen in Figure 33 below, which shows the hypothetical scoring of two children.

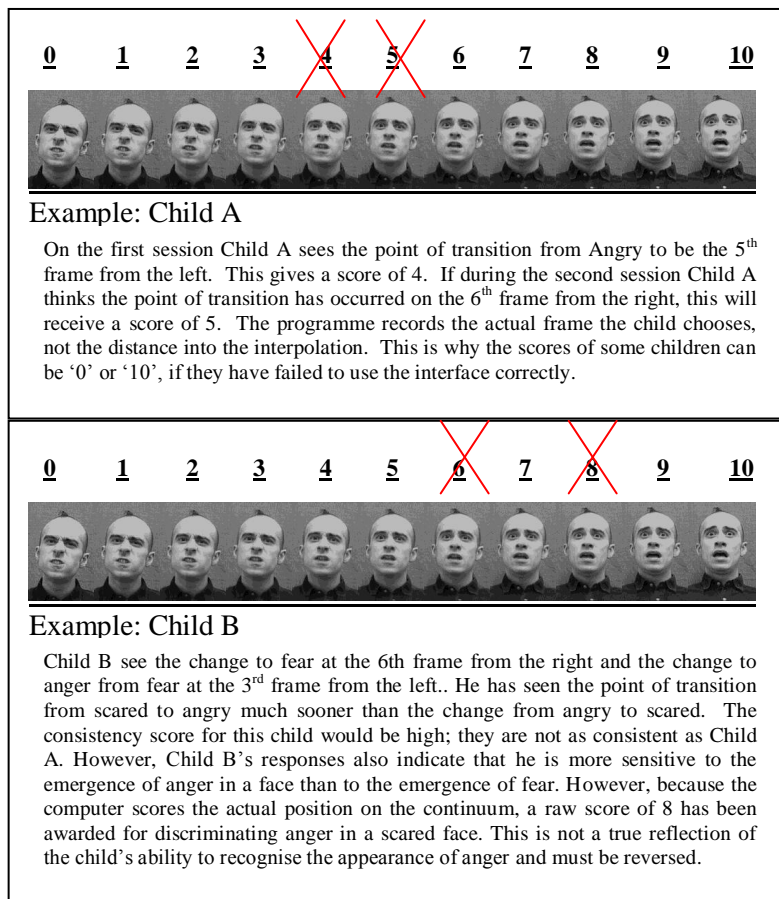


Figure 33: Example scoring CHILD A and B

Child A has chosen a similar point on the continuum, so consistency between scores will be a small figure, indicating strong consistency. However, the child has taken longer to see the emergence of anger in the interpolation (six frames) from fear than they have to see the emergence of fear from anger. In order to calculate how early in the interpolation a child is seeing a change, the scores from the second session are reversed (10-8); Child B will have scored 2 for the transition of 'Scared to Angry', and 5 for 'Angry to Scared'. Applying this formula to Child A above, Child A scores 4 for 'Angry to Scared' and (10-5=5) for 'Scared to

Angry'. Child A shows more consistency between sessions but is less sensitive to anger in emotional change than Child B.

7.2.4.1. Calculating Consistency

Emotional transitions were presented twice with the likelihood that a child would determine the point of change earlier or later dependent upon the direction. The point at which change was determined was counted as the child's score. Consistency was measured by subtracting the score for each transition from the first session from the score of the transition from the second session. Scores for consistency per participant could therefore have positive or negative values, depending the direction the transition was first presented. As a consequence, mean consistency scores calculated across all 13 presentations could hide overall consistency variations for the participant, as negative and positive scores would cancel out. Individual consistency scores for each transition were therefore corrected by being squared (to remove the cancelling effect of positive and negative values) and the square root taken of this figure to produce a 'Total Consistency Score'. This score reflected the true level of deviance in the point of uncertainty between sessions for each participant. A small figure for Total Consistency indicates the child has high coherence between sessions in choosing the point of transition. All analyses of mean consistency are calculated using Total Consistency Scores.

7.2.4.2. Establishing a Normative Sample

As the aim of Study 3 was to produce a normative sample against which to compare children with emotional problems, it was important that the results of analysis should reflect the scoring trends of a typically developing sample. For this reason any children on the Special Needs or Behavioural register were excluded from analysis. For this reason too, it had to be considered that any child who was scoring very differently from the norm may be considered atypical and should be removed from the sample.

Five considerations were used to identify outliers which could be removed from the MORPHO dataset before analysis:

1. Consistency scores. As the child may see transitions occur earlier or later in the interpolation dependent upon the direction, a participant may score differently on each session of MORPHO. A consistency score is the difference between the two points of transition; this could be a negative or a positive difference. These individual variations will have an impact on mean scores for consistency for each child. Whereas some

difference in spotting the point of transition is expected between sessions, large variations would suggest a problem with handling the interface. A small number of participants with very high numerical values for consistency (indicating an unnaturally wide diversity in response) could distort the dataset.

2. Unusual scores. The number of variable scores which were abnormal for the participant; that is outside the range of the majority of scores. For example, in the process of analysis several cumulative scores (such as mean score of all anger related items) were calculated. Where scores on these were extremely divergent from the mean this might have an impact on analysis and distort the true picture of typical response.
3. Rogue or Extreme responses. This refers to scores of 0, 1, 9 or 10 for an emotional transition. MORPHO was designed so the child had to manipulate the face (thus changing the expression) before they could choose the point of uncertainty, but errors were still possible, for example the child clicking the button immediately on presentation. It would be expected that the uncertainty point for most children would be moderately equidistant between the two facial presentations, so that mean scores will lie somewhere from three to seven in an 11 point scale. If a child chose 0, 1, 9 or 10 as the point of uncertainty, this meant they had chosen one of the most extreme positions (i.e. happiness or sadness) or the starting point (1 or 9) as the midpoint between emotions (see Figure 33). This would indicate the child had not understood how to use MORPHO or what was meant by emotional change. Scores of a child who had chosen extreme point of transition (close to or at the original emotion) an unusually large number of times would arguably need to be removed from the dataset.
4. Standard Deviations for Consistency. As consistency scores may be negative or positive (see item 1), in order to examine the variability across the whole sample standard deviations for consistency were calculated. It was anticipated that most children would score within two standard deviations of the mean as there could be a fairly wide range of variability across 13 transitional pairs. A standard deviation of three and over would highlight a possible problem with a child's scoring, and the participant's scores were examined in conjunction with other considerations above.

7.2.4.2. Calculating the Persistence of Emotions

The point at which the child determined that an emotional transition was taking place could have been influenced by the type of presentation: some emotional transitions may be more difficult to assess, making it harder for children to identify the point of change. The point at which the perceptual shift from one emotion to another occurred might therefore vary according to the actual emotion or type of emotion being presented.

Response points for second session transitions were therefore transformed into scores which reflected the distance into the interpolation that the child could no longer distinguish the presented emotion. Mean scores of types of emotional presentation, as well as individual emotions, could be examined. Six out of the 13 presentations included the option 'Nothing Much' and only two transitions included same negative/negative valence transitions: 'Angry' to 'Sad' and 'Angry' to 'Scared', with no positive/positive emotional transitions¹⁸. The remaining five transitions were negative/positive.

Considerations for type of emotional presentation were:

1. Presentation by emotionality
 - a. Transitions from one emotion to another emotion
 - For example happiness to sadness, fear to anger
 - b. Transitions from one emotion to the neutral face (and vice versa)
 - For example happiness to neutral, neutral to sadness
2. Presentation by valence
 - a. Positive to negative emotional transition
 - For example happiness to sadness
 - b. Negative to negative emotional transition
 - For example fear to anger
3. Group differences: sex, age group or ethnicity

7.2.4.3. Examining Anger and Fear in Emotional Appraisal

As previous studies had found a significant effect for anger or fear in comparison to neutral faces it was decided to use two patterns in this study: a) transitions to and from angry or scared in comparison to other emotions and b) transitions to and from angry or scared and the neutral face. Mean scores for all non-anger related and non-fear related transitions were computed into new variables for analyses. Anger related items were compared to non-anger related items as follows:

1. All Emotional transitions excluding Anger versus all emotional transitions including anger (no 'neutral' transitions).

¹⁸ The only positive/positive transition possible would have been Happy to Surprised. It was decided not to include this presentation as the two facial expressions are very similar and this may have compromised the overall results of the study. As both emotions were presented in combination with other emotions and 'nothing much', this combination was also felt to be expendable. It was important to limit the number of transitions in each session so as not to overwhelm the child and all combinations were chosen for their relevance to the current study.

2. Mean of all emotional transitions to and from neutral excluding Anger versus Anger to and from neutral.
3. Individual emotions to neutral versus Anger to neutral.
4. Neutral face to Emotion versus Neutral to Anger.

The same analyses were repeated for fear related versus non-fear related stimuli:

5. All emotional transitions excluding Scared versus all emotional transitions including Scared (no 'neutral' transitions)
6. Mean of all emotional transitions to and from neutral excluding Scared versus Scared to and from neutral.
7. Individual emotions to neutral versus Scared to neutral.
8. Neutral face to individual emotions versus neutral to Scared.

7.3. RESULTS

Analysis of responses is presented in three sections:

1. Sample Statistics: Composition of sample in terms of ethnicity and age, feedback responses and identification of the normative sample. Feedback provides an important opportunity to see how well children coped with the task and whether or not they found it enjoyable. Prior to analysing responses inferentially a standardising dataset was established of children whose ‘scores’ did not violate any of the criteria determined for choosing a normative sample. This procedure is documented in the Method section.

2. Consistency: Consistency between sessions of the normative sample (analysis based on children’s responses by age, sex and ethnic group). Mean consistency for each of the 13 different emotional transitions was examined.

3. Persistence: Persistence of particular emotions in comparison with others, taking into account stimulus and participant factors. Persistence of emotions was calculated for all children across the spectrum of emotional blends and age, sex and ethnic group comparisons made. Persistence of anger and fear in facial expression (see Method) was examined. Differences in consistency and persistence for same and opposing valence transitions (negative/negative as opposed to negative/positive) were studied, as were emotion/emotion and emotion/neutral presentations. Global across-sample trends and differences in between-group populations: sex, ethnicity and age, were examined. Tables and figures supporting the following analyses can be found in Appendix 3.6.

7.3.1. Sample Statistics

As can be seen in Table 35, few children declared ethnicity outside white and ‘other’, making detailed analysis impracticable. Ethnic categories were those chosen by schools in Study 1 (for consistency). It is difficult at any time to quantify what ‘Other’ means in terms of ethnicity, as it encompasses not only mixes of ethnic background but families who are unwillingly to declare, but the best descriptor was felt to be ‘non-white’. With extremely small numbers of children in the categories ‘African-Caribbean’ and ‘Mediterranean’ it was decided to amalgamate all groups other than ‘White’, reducing ethnic groups to ‘White’ (51) and ‘Non-White’, (41).

ORIGINAL ETHNIC GROUPS					TWO-CATEGORY ETHNICITY				
Ethnicity	Year at School	Sex		Total	Ethnicity 2 groups	Year at School	Sex		Total
		Male	Female				Male	Female	
White	3.00	12	9	21	White	3.00	12	9	21
	4.00	1	7	8		4.00	1	7	8
	5.00	8	14	22		5.00	8	14	22
	6.00	2	6	8		6.00	2	6	8
	Total	23	36	59		Total	23	36	59
African-Caribbean	3.00	-	1	1	Non White	3.00	5	2	7
	5.00	-	1	1		4.00	9	6	15
	Total	-	2	2		5.00	5	10	15
Mediterranean & Turkish	3.00	2	1	3		6.00	5	2	7
	4.00	1	2	3		Total	24	20	44
	5.00	2	-	2					
	6.00	1	-	1					
	Total	6	3	9					
Other	3.00	3	-	3					
	4.00	8	4	12					
	5.00	3	9	12					
	6.00	4	2	6					
	Total	18	15	33					

Table 35: Ethnicity and sex of MORPHO sample

This gave two fairly well balanced groups, more likely to provide homogeneity for tests regarding ethnicity and still allowing interactions with sex and year at school to be examined. year totals were as follows: year three = 25 children, mean age 7.72, year four = 20 children, mean age 8.80, year five = 32 children, mean age 9.62 and year six = 15 children, mean age 10.6.

7.3.1.1. Feedback

Response to the task was varied, as can be seen in Table 36. Chi-Square confirmed significantly more children liked the activity than disliked or were unsure about it.

Activity Evaluation - Time 1			Task Evaluation - Time 1			Faces Evaluation - Time 1		
Liked it	Not Sure	Didn't Like	Easy Task	Not Sure	Didn't Understand	Knew Faces	Not Sure	Difficult to Recognise
85	18	-	71	28	4	45	48	10
Activity Evaluation - Time 2			Task Evaluation - Time 2			Faces Evaluation - Time 2		
Liked it	Not Sure	Didn't Like	Easy Task	Not Sure	Didn't Understand	Knew Faces	Not Sure	Difficult to Recognise
84	16	3	81	17	5	49	46	8

Table 36: Feedback from participants about the activity

No children in the first session said they disliked like the task, which may reflect the novelty aspect: 1st session $\chi^2(1)=45.583$; $p<0.01$; 2nd session $\chi^2(2)=110.233$; $p<0.01$. Significantly more children understood the activity than found it difficult or were unsure: 1st session $\chi^2(2)=67.126$; $p<0.01$; 2nd session $\chi^2(2)=97.243$; $p<0.01$. Opinion was mixed as to the ease of recognising the faces (see Table 35). Significantly less children said they found the faces difficult to discriminate than were either confident or not sure: first session $\chi^2(2)=26.00$; $p<0.01$; second session $\chi^2(2)=30.427$; $p<0.01$. Evaluation scores were correlated across both sessions. Children who found the task easy also found it easy to discriminate: 1st session ($r_s=.350$; $n=103$; $p<0.01$), 2nd session ($r_s=.234$; $n=103$; $p<0.05$). Children who found it easy to discriminate faces enjoyed the task more: ($r_s=.213$; $n=103$; $p<0.05$). Analysis with Mann-Whitney U found no significant differences between sex, ethnic or age groups in any ratings of the task for either of the two sessions.

7.3.1.2. Data Reduction

Two types of analysis took place for MORPHO responses. Firstly, consistency, determined by raw scores recorded by the programme (see Methodology; 7.2.4.1.). Secondly, persistence of emotion, (whether some emotions or emotional blends are detected earlier in a transition than others), as measured by mean scores. All second session results were first reversed and mean scores then calculated, enabling comparison of different emotions across the whole sample.

7.3.1.3. Establishing a Normative Sample

Four considerations to identify atypical profiles in the MORPHO dataset were proposed and are detailed in Chapter 7.2.4.2.

Consistency Scores:

During examination of the raw consistency figures, one child in the sample presented with an extreme raw score for consistency across 13 presentations (-64), well outside the range of any other scores in the data set. The effect of this extreme score was removed somewhat by the process of calculating the Total Consistency Score, (see ‘Scoring – Data Reduction’ above) reducing the score to 20.15. Examining the whole dataset it was clear the main bulk of Total Consistency Scores were very closely connected up to a score of 12.57. Above this point were seven scores from 16.94 to 23.71. Although any cut-off point would be arbitrary it was decided to examine further the seven participants with a Total Consistency Scores over four points higher than the majority of scores, with a view to excluding them from the normative sample. These participants are presented in Table 36.

Unusual Scores.

There were few unusual scores amongst the variables under investigation: most participants scored similarly. Those that were noticeably different from the general scoring trend were clustered amongst the same set of participants shown below in Table 36.

Rogue and Extreme Scores

Examining the dataset, most children never chose the extreme positions as their point of uncertainty. Out of a total of 92, only 27 children showed a rogue 0 or 10 response. These could have been accidental and would not affect mean scores or the dataset. In most cases this meant one or two isolated occasions; four children in all showed three to four rogue responses, five showed five to seven, two showed eight to nine, two showed 11 and one participant showed 18 rogue scores; well over half their total responses. In total, 24 children out of 92 had an extreme response of 1 or 9. Putting all occasions of extreme scores together, eight children had three to five responses of 0, 1, 9 or 10; three children had six to eight occurrences; two had nine occurrences; four had 11 to 13 and one had 22. Out of a total of 26 scores this is extreme and it was considered that this participant's scores should be automatically removed from the normative sample.

Standard Deviations in Mean Consistency

Standard deviations of consistency scores were fairly wide ranging, as might be expected. However, most children scored within two standard deviations from the mean across all 13 transitions. Of these, 25 participants were within one standard deviation from the mean, 43 between one and two, 13 between two and three and five between three and four, with six participants showing standard deviations of over four (between 4.47 and 6.80).

7.3.1.3.1. Final Normative Sample

Looking at how participants scored in all five of these areas, seven participants' scoring patterns were isolated for consideration as atypical, as can be seen in Table 37 below. The final row shows the mean values for the final typically developing sample, which are very different.

Participant	Total Consistency Score	Odd scores in dataset	Rogue responses	Extreme scores	Consistency St Deviation
			Number 0/10 scores	Number 0,1,9 or 10	
1	16.94	2	8	9	4.74
2	18.89	6	11	13	4.47
3	17.23	5	6	12	4.90
4	20.15	11	6	9	2.75
5	17.44	8	11	12	4.97
6	18.49	7	9	11	4.59
7	23.71	9	18	22	6.80
TD Average	5.29	0	0	0	0.51

Table 37: Considerations for exclusion of participants from normative sample

The decision to withdraw cases from analysis must be carefully considered, particularly with a relatively small sample. However, most analyses for Study 3 were based on mean values and mean scores are very susceptible to the influence of outliers. In order to establish a normative sample with the lowest possible risk of type 1 errors, all seven participants in Table 36 were removed from further analysis. Applying these criteria reduced the typical sample by 7.6%, which was considered an acceptable loss. The final normative sample consisted of 85 children, 36 male and 49 female, mean age 9.12, SD 1.19.

7.3.2. Consistency

Measures of central tendency for raw consistency can be seen in Table 38 which presents each of the 13 emotional pairs along with the descriptive statistics for each. The mean score represents the sample mean of all participants' discrepancies between the two sessions for that emotion transition. Interestingly, the 'Happy/Sad' pair has a mean of zero, indicating that on average children were finding the same transition point whether they viewed happiness appearing in a sad face or whether they viewed sadness appearing in a happy face.

Consistency of Response In Emotion transition	Mean	Std. Dev.
Angry : Happy	0.129	1.242
Surprise : Nothing Much	0.177	1.807
Scared : Nothing Much	-0.177	1.649
Disgust : Nothing Much	0.294	1.710
Angry : Nothing Much	-0.071	2.075
Scared : Surprised	-0.247	1.792
Scared : Happy	0.200	1.510
Happy : Sad	0.000	1.504
Happy : Nothing Much	-0.259	1.529
Angry : Sad	-0.035	1.304
Sad : Nothing Much	0.247	1.704
Angry : Scared	-0.094	1.532
Scared : Sad	-0.059	1.606

Table 38: Measures of central tendency in consistency

In order to examine responses of children to each transitional pair of emotions, all analyses of mean consistency use a 'Total Consistency' Score calculated from the raw scores.

7.3.2.1. Total Consistency

Using ANOVA no significant differences were found for Total Consistency in sex, ethnicity or year at school, showing no differences overall in consistency between groups. No difference in

Total Consistency scores was found between older and younger age groups and no two or three way interactions between groups were observed.

7.3.2.2. Consistency and Type of Presentation

There was a possibility that consistency between sessions may vary depending upon the order that the transitions were shown, for example 'Sad' first on a 'Sad' to 'Happy' transition, or 'Happy' first on the same transition. However, ANOVA found no significant differences dependent upon presentation order for any of the 13 emotional transitions.

7.3.2.3. Sex Effects: Stimuli versus Participants

Using MANOVA only two differences for sex: 'Disgust/Nothing Much' $F(1,83)= 9.044$; $p<0.01$ with males (mean consistency -0.417) showing a strong consistency well below the mean compared to that of females (0.612). Again with the transition 'Angry/Sad' males show a consistency in choosing the point of transition which is below the mean (-0.361), whereas females are above the mean (0.204): $F(1,83)= 4.038$; $p<0.05$. No interactions were found between sex and any other variable for these two transitions, confirming a sex difference in appraisal.

Using MANOVA, a significant interaction was found between ethnicity and sex for 'Scared/Nothing Much': $F(1,77)= 10.236$; $p<0.01$, with Non-White females showing a stronger consistency (-.625) than White females (.546). A significant interaction with found for 'Angry/Nothing Much' between Sex, Ethnicity and Year as School $F(3,69)= 6.540$; $p<0.01$ which was not possible to interpret, particularly as sample sizes for sub-groups were very small. No main effects were found for ethnicity or age.

It was possible that consistency was affected by the type or valence of emotional presentation. Using paired samples t-tests no significant difference was found for consistency between different valence (negative/positive and negative/negative) presentations or between emotion/emotion and emotion/neutral transitions.

Possible sex, ethnic and age differences in consistency for different types of emotional presentation were examined. There was no significant difference for sex, ethnicity or year at school with regard to either different valence transitions or same valence transitions. No sex, ethnicity and age group differences were found for consistency with emotion/emotion or emotion/neutral presentations.

Possible effects of the sex of the stimulus on the consistency of response in the sample were investigated. No significant differences were found using ANOVA in the general response to male and female faces, but a significant difference was found between male and female participants in assessing the faces of the same and opposite sex. A sex of stimulus/sex of participant interaction was seen with male participants more consistent in their point of decision across both sessions when viewing female faces than were females: $F(1,83)=4.355$; $p<0.05$ (mean differences 0.28). No difference was found in consistency for the appraisal of male faces by males or females and no interactions found between sex and other groups.

Looking for age differences in sex assessment, a sex of stimulus/ age interaction was found, with male faces appraised more consistently by older children than younger children. Years five and six were significantly more consistent in their choice of decision point across the session when viewing transitions that involved male faces than were years three and four: $F(1,83)=4.269$; $p<0.05$ (mean difference .293). There were no effects for ethnic group or interactions between groups.

7.3.2.4. Emotional Transitions: Points of Choice

MORPHO comprised two sessions where participants saw each emotional transition from two viewpoints, for example ‘Angry’ to ‘Happy’ was repeated as ‘Happy’ to ‘Angry’. Figures 34 and 35 show comparative scores for each directional blend of the 13 emotional transitions, and illustrate graphically the consistency of the whole sample. These figures display mean response points and represent where along the interpolation most transition points were seen. Although response points could be situated from 0 to 10, most children were choosing a fairly central position in the interpolation as their point of transition.

Although there were occasional extreme scores from some participants, all emotional transitions were identified between 4.7 and 7.0 on the continuum of interpolation. Some transitions had a full range of scores, from the minimum of zero to a maximum of 10, but these were isolated cases and were more likely to be the result of error than an inability to discern emotional transition. This can be confirmed by examining standard deviations, which are given along with the full range of histograms showing the patterns of each transition in Appendix 3.5.

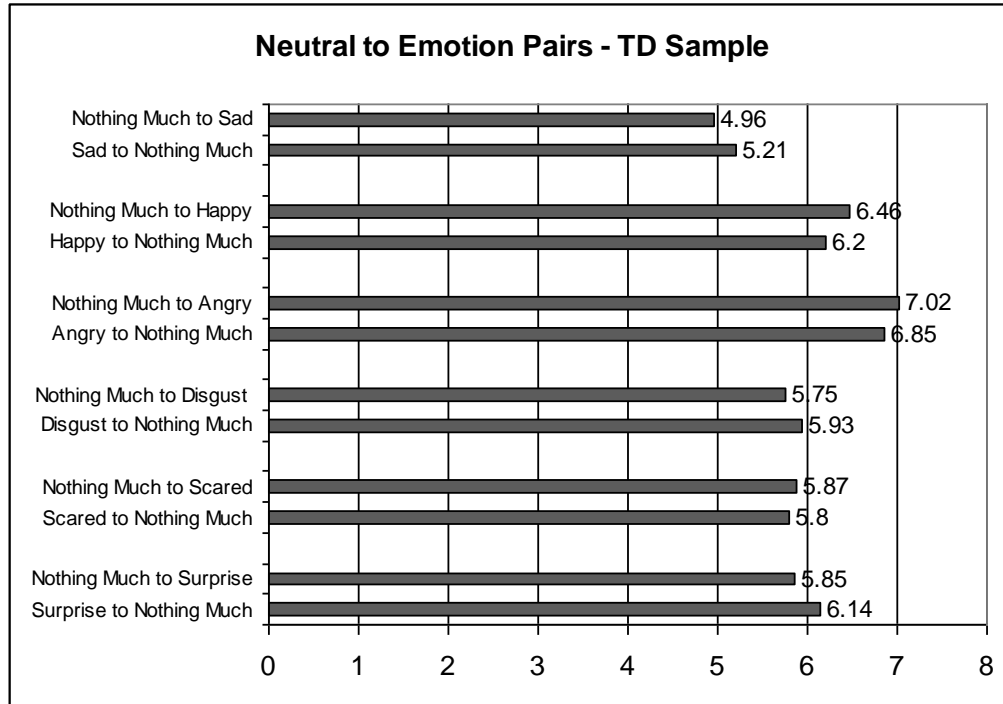


Figure 34: Means for the six Emotion to Neutral pairs

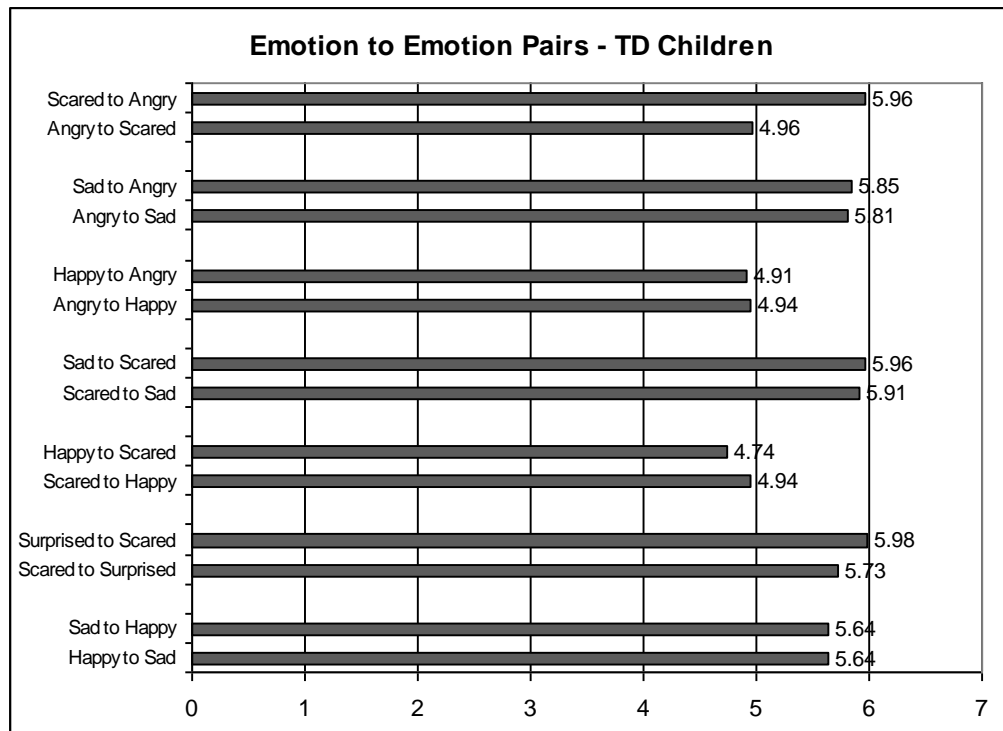


Figure 35: Means for the seven Emotion to Emotion pairs

Some pairs had markedly different transition points than others (compare the angry/nothing much transitions above with the disgust/nothing much profile). These patterns of response are interesting but inferences can only be made if all children are scoring similarly, rather than mean scores being affected by extreme variation. Paired t-tests (which carry a high chance of type-I error) found no significant difference between any paired transitions as seen above.

7.3.3. Persistence of Different Emotions

The point at which a perceptual shift occurred in an interpolation might vary according to the emotion itself or the type of emotion being presented. Mean scores for different types of presentation were compared.

7.3.3.1. Different Types of Emotional Presentation

Looking at all emotion/emotion transitions, significant differences were found using paired t-tests between several of the transitional pairs. Children saw the transition towards Scared from Surprised significantly earlier in the interpolation than they saw Surprise emerge from Scared: $t(84)=7.915$; $p<0.01$. Children also identified Happiness earlier in the transition towards Sad than they saw Sadness in the transition from Happy: $t(84)=6.807$; $p<0.01$, Angry earlier in transition from Sad than Sadness from Angry: $t(84)=9.103$; $p<0.01$ and Scared earlier in the transition from Sadness than Sad from Scared $t(84)=4.779$; $p<0.01$). Three pairs did not show a significant difference: Happy/Angry, Happy/Scared and Scared/Angry.

A significant difference was found between transitions of an Emotion to 'Nothing Much' and the reverse presentation of 'Nothing Much' to an Emotion, $t(84)=15.697$; $p<0.01$. Children are recognising the emergence of an emotion from a neutral face significantly faster than the emotion recedes. Looking at individual emotion and neutral face transitions, significant differences were found for all transitions except that of Sad and 'Nothing Much'. Disgusted was recognised earlier in the transition from the neutral face and was retained longer: $t(84)=7.942$; $p<0.01$, as was Angry $t(84)=18.710$; $p<0.01$, Surprised $t(84)=9.815$; $p<0.01$, Scared $t(84)=8.139$; $p<0.01$ and Happy $t(84)=14.469$; $p<0.01$.

No significant difference was found between positive/negative emotional transitions and negative/negative emotional transitions. Paired sample t-tests were used to investigate whether children would find a different point of uncertainty if presented with an emotion/neutral face

presentation as opposed to an emotion/emotion transition. There was no significant difference in scoring between emotion/emotion and emotion/neutral presentations overall.

It was important to identify how much of any difference in the persistence of an emotion in the perception might be related to between-group influences; that is sex, ethnicity or age. ANOVA found no significant differences for sex, ethnicity or age group for Emotion to Emotion transitions, Emotion to Neutral transitions, Positive/Negative transitions or Positive/Negative transitions.

In conclusion, children are seeing an emotional transformation in a face earlier in the transition when it emerges from a neutral face. This was true for all emotions except sadness, where no change was seen. Sadness was the hardest emotion to identify in comparison with other emotions; it was detected in transitions significantly later¹⁹ than happiness, anger and fear.

7.3.3.2. Sex Effects in mean scores: Stimuli versus Participants

Possible effect of the sex of the stimulus; that is whether it was a male or female face, on the mean scores of participants was investigated. No differences were found using ANOVA between the general response to male and female faces, or between male and female participants in assessing the faces of the same and opposite sex. No difference was found in mean scores overall for male or female faces according to sex or ethnicity.

Looking for age differences in mean scoring by sex of stimulus, Years 5 and 6 are seeing the emotional transition at an earlier point than are Years 3 and 4, for male faces only, $F(1,77)=4.367$; $p<0.05$, mean difference .1642. There were no interactions with other groups. No significant difference was found for age group and female faces.

7.3.4. Viewing Angry and Fearful Faces

As scores from one item were being compared with mean scores from combined items, resulting in very unequal sample sizes, non parametric testing (Wilcoxon Signed Ranks) was used for the above investigations.

¹⁹ The word 'later' has been chosen to describe a point of uncertainty that occurs further into the transition than the point determined by a comparative group. As no timing was involved in the MORPHO transitions the term 'later' as used in this study does not refer to any delay in terms of time, but does infer that participants did not observe a change occurring in the emotion at the same point. 'Earlier' and 'later' therefore refer to comparative points of uncertainty in the transition from one emotion to another.

7.3.4.1. Angry Faces

Anger was paired in transitions with four other emotions: fear, happiness, sadness and the neutral face. Several effects for ‘anger’ were observed whilst examining these transitions. Looking at mean scores, a significant difference was found between transitions towards or away from Anger items, with Anger detected earlier from other emotions than other emotions are detected from Anger ($z=4.627$; $p<0.01$) in a transition. There was no difference found for sex, ethnicity or age group.

7.3.4.1.1. Anger in Emotion-Emotion transitions

Looking at individual emotion/emotion transitions involving anger, a significant difference was found for anger in the ‘Angry/Sad’ transition ($z=3.145$; $p<0.01$) where the mean point of detection for anger was 4.15 and the mean point of detection for sadness was 5.81. However, no significant difference was found in mean detection points for but not the ‘Angry/Scared’ or ‘Angry/Happy’ transitions: whereas sadness emerges later in comparison to anger in a transition, happiness and fear do not take significantly longer than anger to be detected.

7.3.4.1.2. Anger/Neutral Blends Versus Non-Anger/Neutral blends

A strong effect was found for anger in emotion/neutral transitions. Children took longer to discern the dissolution of Anger than other valenced emotions with a significant difference between Angry/neutral transitions (mean 6.85) and the mean score of other emotions to neutral (mean 5.86): $z=6.753$; $p<0.01$. Looking at emotions emerging from the neutral face the same pattern was evident: Anger is noticed significantly earlier in the interpolation from a neutral face (mean 7.02) than other emotions generally (mean 4.22): $z=7.604$; $p<0.01$.

7.3.4.1.3. Individual Emotions Versus Anger to Neutral Face

Individual emotion transitions towards the neutral face were examined. ‘Angry’ resolved significantly later in transitions to neutral than ‘Surprised’ ($z=4.355$; $p<0.01$), ‘Scared’ ($z=5.827$; $p<0.01$), ‘Happy’ ($z=4.449$; $p<0.01$), ‘Sad’ ($z=6.672$; $p<0.01$) and ‘Disgusted’ ($z=5.045$; $p<0.01$), showing a strong overall effect for anger in a neutral transition context.

7.3.4.1.4. Individual Emotions Versus Anger to Neutral Face

‘Angry’ was also detected significantly earlier in transitions from the neutral face than all other individual emotions: ‘Surprised’ ($z=5.285$; $p<0.01$), ‘Scared’ ($z=6.137$; $p<0.01$), ‘Happy’ ($z=3.660$; $p<0.01$), ‘Sad’ ($z=7.301$; $p<0.01$) and ‘Disgusted’ ($z=6.239$; $p<0.01$). Item mean scores can be found in Appendix 3.6.

7.3.4.2. Viewing Fearful Faces

Fear was paired in transitions with four other emotions: anger, happiness, sadness and the neutral face. Looking at 'Scared' items alone, a significant difference was found between emotions towards 'Scared' and emotions away from 'Scared' ($z=5.773$; $p<0.01$), with Scared being detected at an earlier point in the interpolation when it was the target emotion than the mean of all other emotions. There were no main effects or interactions for sex, year at school or ethnicity.

7.3.4.2.1. Fear in Emotion-Emotion Transitions

Looking at individual emotion/emotion transitions involving fear, a significant difference was found for fear in the 'Scared/Surprised' transition ($z=6.157$; $p<0.01$) and the 'Sad/Scared' transition ($z=4.483$; $p<0.01$) but not the 'Scared/Happy' or 'Scared/Angry' transitions: in addition to anger, fear is not taking significantly longer than happiness to be detected.

7.3.4.2.2. Fear/Neutral Blends Versus Non-Fear/Neutral Blends

No significant difference was found between Scared to the neutral face and mean scores of other emotions to the neutral face ($p=0.093$). No significant difference was found between the 'Nothing Much' neutral face transition to Scared and transitions from the neutral face to the mean score of all other emotions ($p=0.275$).

7.3.4.2.3. Individual Emotions Versus Fear to Neutral Face

Individual emotion transitions towards the neutral face were examined, with the follow results: participants see the resolution of sadness towards the neutral face earlier in the interpolation than the resolution of fear ($z=2.884$; $p<0.01$). Sadness had the lowest mean score of all emotional transitions to the neutral face and was the earliest emotion to resolve. No other significant differences were found.

7.3.4.2.4. Individual Emotions Versus Fear From Neutral Face

However, looking at the emergence of emotion from the neutral face, fear is detected significantly earlier in the interpolation from neutral than is sadness ($z=4.368$; $p<0.01$); in fact 'Nothing Much' to 'Sad' was the least easiest to determine from the neutral face. Happiness is detected significantly sooner in a neutral face transition than is fear ($z=3.430$; $p<0.01$) and after anger was the most readily noticed expression.

No sex or ethnicity differences were found for any of the above anger or fear analyses.

7.4. DESIGN CONSIDERATIONS: METHODOLOGY OF TEST

Discussion relating to hypotheses for this study and the limitations of the current measure, can be found in Chapter 9. Two issues concerning the methodology are presented here.

7.4.1. Design of Interface

Subsequent to the use of MORPHO and the high rate of consistency between trials, the number of transition points for each emotional presentation could be increased to allow more discrete changes in the point of transition to be examined and the interpolation appear more realistic. The current 11 transition points may encourage a ‘ceiling’ effect, in that the child can easily spot the central point of the interpolation. Recent research with dynamic morphed displays has considered 20 frames appropriate for a smooth, naturalistic presentation of emotional change (Kirsh et al., 2006). Broadening the number of transition points would also make it less easy to select the same transition point on the second session, allowing for less obvious differences to be detected. Another possible modification to counter the ceiling effect would be to remove the slider altogether, perhaps positioning emotional words to the left and right of the image. However, this may make it harder to manipulate the interface.

7.4.2. Use of Prompts in Handling the Media

Whereas most children quickly understood the concept of one emotion turning into another and finding the point of uncertainty (Can’t Tell), some did not and required a series of prompts in order to handle the task. At times, and at the child’s request, the author would take over handling the interface whilst talking to the child to enable them to observe and think about the process. On these occasions the author would ask: “*What’s the man/lady feeling now? Let’s watch her change to another feeling. What is she feeling now? Let’s go back to when she was *****. Now we’ll start to change her face. Tell me to stop when you think she’s not feeling ***** anymore and might be starting to feel something else.*” Where a child failed to identify an emotion (this was most likely to occur with ‘disgust’ and ‘surprised’) the emotion was explained with the use of anecdotal scenarios, for example: “*he is screwing up his face and nose because he has smelled something horrible. We call this disgust*” before continuing with the activity. At this point the child was likely to reaffirm this concept by adding their own descriptions, such as ‘*something yucky*’ or ‘*he smelled a bad smell. He wants it to go away*’.

CHAPTER 8: STUDY 4 - EMOTIONAL COMPETENCE AND APPRAISAL ABILITIES OF CHILDREN WITH SEVERE BEHAVIOURAL PROBLEMS

Having standardised a set of measures to examine emotional competence and appraisal of affect in Studies 1, 2a, 2b and 3, this study will utilise a sample of children with severe behavioural problems who have been excluded from mainstream schooling and compare their responses on each of the measures. These children will be referred to as 'Behaviourally Challenged' (BC) in order to differentiate from children with SEBD in mainstream schooling. Chapter 2 (General Methodology) gives a full description of all labels used for children in this study and the reasons why these were chosen.

8.1. INTRODUCTION

8.1.1. Emotional Competence in Behaviourally Challenged Children

Study 4 firstly addressed the question of whether primary aged children showing severe emotional and behavioural problems would score differently for emotional competence than their peers and exhibit significantly atypical profiles in key competencies of empathy, perception of emotions, or expressivity, as established in Study 1. Deficits in empathy have been seen in children with behavioural problems (Hastings et al, 2005). However, children with behavioural problems have also been observed to have a dysfunctional idea of their own peer acceptability, thinking they get on better with peers than they in fact do and exhibiting high levels of inattention, hyperactivity, antisocial behaviour and academic problems (Pardini, Barry, Barth, Lochman & Wells, 2006). Whereas lower peer-rated social standing was associated with externalised behaviour problems many children viewed themselves as liked and accepted by peers. This perception of the self as interpersonally competent was linked to an increase in violent behaviours; the child possibly seeing these as a sign of machismo acceptance (Pardini et al., 2006). In contrast, perception of low peer acceptance (regardless of accuracy) was generally found to be linked with depressive symptoms. This raises the possibility of BC children rating their own emotional competence higher than it may be rated by others, considering their problem behaviour. In line with recent thinking on the nature of aggressive behaviour and bully

in particular, children with behavioural problems may conversely score as high if not higher for some areas of emotional competence. Bullies aged seven to 10 years (Sutton, 2001; Sutton, Smith & Swettenham, 1999) have been found to score significantly higher for both cognitive and affective empathy than their victims, in line with the theory that many forms of bullying require skilled social manipulation (Sutton et al., 1999).

8.1.2. Emotion Appraisal in Behaviourally Challenged Children

Secondly, this study examined whether children with severe behavioural problems would show similar or biased patterns in appraising emotion in others compared to TD mainstream peers and whether they would exhibit a hostility bias towards pictorial peer representations, in not only considering the possibly hostile and intentional postures as potentially aggressive or threatening but viewing more innocuous postures as more threatening or negative. This premise has basis in previous research. Hostility bias had previously been observed in aggressive children using video-recorded stimuli, where boys aged eight to 10 years displayed a clear bias towards attributing hostile intent to peer representations, in comparison to non-aggressive boys (Dodge & Somberg, 1987). The authors viewed this hostility bias as a deficit in social interpretation of the other by the children in question. Bias was exacerbated when scenarios suggesting possible conditions of threat were used. A hostility bias has also been observed in response to peer provocation in children with behavioural problems (Crick et al., 2002). In Study 2 typical responses of mainstream school children aged seven to 11 years to emotionally ambiguous pictures of other children were examined. By using the same ambiguous stimuli Study 4 aims to investigate whether such a confrontational or hostility bias operates in response to visual presentations of other children; in other words, do children with severe behavioural problems misread the social signals of others compared to typically developing peers.

8.1.3. Emotion Appraisal in Behaviourally Challenged Children: Facial Emotion and Reasons for Change

Thirdly, the ability of children with behavioural problems to determine emotion in faces was examined, together with their ability to provide age-appropriate reasons for emotional change. By middle childhood the ability to differentiate emotional expression in faces is well established, although the child's accuracy improves throughout childhood (DeSonneville et al., 2002) and into puberty (Denham, 1998). As some correlation has been found between poor

social skills and the ability to decode some facial emotion (Wocadlo & Rieger, 2006) it was possible that the behaviourally challenged children would show less accuracy in their ability to correctly identify emotional expression in comparison to typically developing peers.

Boys are more likely to have a lower reading age (Flynn & Rahbar, 1994) and many children with severe behavioural problems have a global delay in literacy. Girls in infant schooling (three to five years) have been found to employ more mental state terms than boys (Hughes & Dunn, 1998). As boys comprise the majority of children excluded for emotional behavioural disorders it was therefore anticipated that BC children may give less sophisticated and reflective reasons for emotional change than their typically developing peers.

8.1.4. Recognition of Emotional Transition in Behaviourally Challenged Children

Fourthly, the patterns of response in identifying transition of facial emotion in children with severe behavioural problems was compared to that of TD children. In Study 3 the persistence of the emotions of anger and fear showed dominance over other facial emotions. Of the two, anger was the most persistent and showed the greater effect.

Abused children accurately identify facial displays of anger with less sensory information, suggesting they have enhanced access to representations of anger compared to their peers (Pollak & Sinha, 2002). It was considered that children with severe social, emotional and behavioural problems would also show a facilitated access to facial representations of anger, which may lead to early perception of anger in an interpolation. There is some suggestion that children with behavioural problems are more sensitive to perceived anger than their peers, which may lead to a bias towards anger in their response to emotional faces in comparison to peers (Sharp, 2001). There is evidence that children with behavioural problems in a classroom situation may indeed perceive anger where none exists (Barth & Bastiani, 1997), an enhanced sensitivity which may be due to their own negative self-image (Weiss, 2002). Accordingly the threat-detection mechanism observed in this study may be more overt in children with severe behavioural problems. In addition to anger, it may be that fear will be detected earlier in transitions than with TD children, especially if there is some evidence of anxiety in the population. If this is found to be the case it will support anecdotal evidence that children with severe behavioural problems are over-sensitive to confrontational affect in others, indeed that they may be more aware of traces of anger within facial affect than other children.

Undergraduates with a comparatively high exposure to violent media have been found to respond faster to depictions of anger, and slower to depictions of happiness, than their low-consumption colleagues (Kirsh, Mounts & Olczak, 2006). The study used morphed displays from 'calm' (a neutral expression) to both happiness and anger. Participants were from a normal population of undergraduate psychology students and the effect was significant, independent of trait aggressiveness, suggesting violent exposure itself was a more likely predictor than temperament. It may be that children with severe behavioural problems in an environment of exclusion where angry outbursts are commonplace may be more sensitized to anger than typical mainstream children of the same age. If this is the case, behaviourally challenged children in Study 4 may identify the appearance of anger in an interpolation between emotions at an earlier point than do typically developing children.

It was considered that children with severe behavioural disturbance might show a heightened or lessened response to fear than their typically developing peers in this study. A suggested fear recognition deficit has been observed in participants with high psychopathic personality characteristics using a morphed display of faces (Montagne et al., 2005). Participants with psychopathic personality characteristics showed an impaired recognition of fearful facial expressions compared to typical peers. Although the sample in Study 4 were not diagnosed as suffering from personality disorders it was considered that they might, because of their emotional and social problems, show an atypical response to the appearance and recession of fear in a morphed interpolation.

8.1.5. Other considerations for Behaviourally Challenged Children

In addition to the three measures standardised in the first three studies, Study 4 compared responses on these tests with two other measures: depression and anxiety. Studies of test anxiety have suggested that it has an interfering effect on test performance (Naveh-Benjamin, McKeachie, Lin & Holinger, 1981), particularly in measures where self-evaluation is required, as in the Questionnaire Pack. High anxiety levels can produce errors, task-irrelevant responses and self-centred responses (Naveh-Benjamin et al., 1981) which interfere with performance in evaluative tests, such as in the Picture Pack. This effect has been confirmed with ADHD children (Epstein, Goldberg, Conners & March, 1997). State (performance) anxiety has been linked directly to poor examination performance in many studies (Buchanan & Carr, 1999).

High trait anxiety has been found to facilitate response times in the identification of angry faces in both schematic and cartoon representations (Hadwin et al., 2003). It was considered that this could have implications for 'MORPHO': Although response times were not measured in this thesis, there was the possibility that anger would be detected earlier in an interpolation if the participant was anxious.

Studies in adults suggest that anxiety may be related to early attentional orienting toward threatening stimuli, whereas depression seems to be related to sustained attention toward negative emotional information (Ladouceur et al., 2005). Differences in the processing of emotional information are thought to be a feature in the precipitation and maintenance of not only emotional disorders such as depression and anxiety, but conditions which reflect negative emotionality, such as is found in children with behavioural difficulties (Mathews & MacLeod, 1994). As depression has been linked to self-esteem (Roberts, Gotlib & Kassel, 1996), there is likelihood that if a child is depressed it may affect self-report measures, particularly those which are linked to self worth or perceived performance, as in the questionnaire pack. Co-morbidity of depression with conduct disorder has been well documented (Weiner, 1996); a broad range of from 36% to 80% of depressed juveniles meet the criteria for conduct disorder in clinical studies in the United States. It may well be that a proportion of children in middle childhood will also meet the criteria for depression.

For these reasons it was felt important to include screens for depression and state and trait anxiety alongside the measures used in Study 4 and to investigate whether or not scores for emotional competence and emotional appraisal are correlated with depression or anxiety.

8.1.6. Overall Aims of Study 4

Study 4 brought together the three previous studies in an investigation of differences in emotional competence and appraisal between typically developing children and those with severe behavioural problems. In addition to the comparison between groups of children, scores on some measures (for example, appraisal of affect in others) was compared with the behaviour of the child over the period of testing, as identified by the school.

Trait anxiety and depression were correlated with scores on the FQP and the PP. Links were explored between the behaviour of individuals, their responses to the measures of emotional competence and appraisal, and their depression or anxiety categorisation. A correlation between depression or anxiety and poor scores for emotional competence could suggest a selective processing bias due to an underlying emotional condition of anxiety or depression rather than the condition of behavioural disturbance alone.

Participants in Study 1 included an incidental sample of children with SEN and SEBD. Some interesting trends were seen but no significant differentiation other than between SEN and TD for intrapersonal perception. It was hoped that a pattern of scoring for emotional competence and key competencies would appear for children with severe behavioural problems which could be differentiated from that of TD children. If this is the case it could indicate that the Questionnaire Pack could be developed in the future as an indicator of an atypical pattern of emotional thinking related to behavioural problems which could be used both to differentiate atypical thinking and as a monitor of the success of intervention to change previously intractable patterns of thinking.

8.2. METHOD

8.2.1. Design and Preparation of Materials

This study adapted the three tests previously standardised with typically developing children in Studies 1, 2a, 2b for a one-to-one administration with a difficult population. Details of each of these adaptations are shown below and in Appendix 5, along with materials. It was deemed important for this sample to screen the children in this sample for depression and anxiety, as both these can have an effect on the way a child would view others and their own abilities. Results of anxiety and depression tests could then be correlated with scores for self-report of emotional competence (the Questionnaire Pack; Study 1) and appraisal of emotion in others (the Picture Pack; Studies 2a and 2b).

8.2.1.1. Depression

The measure chosen to screen for depression was the Children's Depression Index by Maria Kovacs (Kovacs, 2001) which has been well validated and is used extensively. Currently a paper questionnaire, this comes in two formats: a full depression inventory (CDI - measuring internalising and externalising features of depression) and a depression screen (CDI-S). It was decided to use the second of the two, the depression screen, for two reasons:

- a. It is shorter (10 items) and less likely to prove difficult for children with attentional problems to complete.
- b. It is only necessary to know whether or not depression is present, therefore a screening tool is satisfactory.

The measure was translated into a PowerPoint format for the child to watch whilst scoring took place (see Appendix 5.5. on the accompanying CD for details and the PowerPoint presentation).

8.2.1.2. Anxiety

The most common measure of anxiety is that devised by Spielberger - the STAI-C - State Trait Anxiety Inventory for Children (Spielberger, 1973). The STAI-C is actually two tests:

- 1) STAIC-S for State anxiety - a measure of temporal anxiety, performance anxiety (and should be used with every administration of tests).
- 2) STAIC-T for Trait anxiety - a measure of long-term, dispositional anxiety (to be used once with each child).

Both of these are paper and pencil tests which were converted into PowerPoint presentations for administration to behaviourally challenged children. Details can be found later in this chapter.

A measure of reading age, in addition to chronological age, was obtained for each of the children in this study. This was a standardised education authority test used by the staff at the school to ascertain comparative reading age, and provided two figures: actual reading age as assessed at the point of yearly testing (and valid until superseded annually) and anticipated reading age (in regard to the next point of testing) based on the child's general progress and developmental norms. This would inform the school as to whether at the next annual test the child was falling below or improving on chronological performance in reading. The first figure (actual reading age at point of testing) was used in this study, although this could conceivably be up to 11 months out of date²⁰.

As only two out of 20 children had an ethnicity other than 'white' there was no opportunity to examine ethnicity as a factor. Similarly, as only one out of 20 children was female, sex considerations were not possible. No further demographical detail was seen as appropriate from this sample, for two reasons: 1) with a small sample of 20 children, sub-groups would be too small for any meaningful comparison and 2) schools felt this would be likely to compromise parental cooperation.

8.2.1.3. Behavioural Indicators

Most children were recruited from one residential school. The sample was obtained through the kind cooperation of the Head of Training who arranged for parent information and consent documents to be sent out to families of all eligible children. Decisions over aspects of the study relating to pupils were made in consultation with the Head of Training. Three means of quantifying the child's behavioural position at the time of assessment were proposed:

- **Descriptors:** These are official categories of behavioural problems, standardised and used throughout the school system to classify the extent of behavioural problems. These run in categories from A to F, with F being the most extreme behavioural problems (See Appendix 4.4 for details). Each category has a list of 'descriptors' of the kind of behavioural problems witnessed in the child. This classification would remain with the children throughout their time at the residential school. Most children are referred to the school early in their primary education (aged seven and above) and remain there throughout the course of their primary schooling (until age 11). Very

²⁰ The child's reading age was ascertained initially at the point of entry to the school and updated annually. This point of entry varied from child to child, dependent upon the date of exclusion from mainstream schooling.

occasionally a child will improve to the extent that it may be considered appropriate to try to reintegrate them into mainstream schooling.

- **Token Economy Scheme:** The children receive a token for every 10 minutes that they behave well during the day. Tokens can be exchanged for privileges (i.e. TV time) and shopping - buying items at the school shop. These tokens are only removed if the child has to pay for physical damages caused to property, as a way of payment, so this is in the main a reward scheme, not a punishment scheme. A full register is kept of all tokens received by each child every day - providing an indicator of how well or badly they were behaving (comparatively) at the time of testing.
- **Behavioural Indicators:** It was decided that a list of behavioural indicators could be put together based on observed behaviours of children with severe behavioural problems (i.e. obscene language, refusing instructions) in consultation with care staff at the behavioural school. The staff could then indicate the degree to which each of these behavioural indicators were a problem at the time of testing.

In the event, only the Token Economy scheme was used as an indication of comparative behavioural assessment. Descriptors, whilst useful in categorising the child for exclusion, could only be useful as a comparative measure if there was some variation between participants and/or variation across time. In the event all the children from the behavioural schools were classed as category 'E or F', the most extreme classifications. In addition, Descriptors were only allocated at the point of entry to the school; no revisions were to take place. This meant that Descriptors could not be used as a comparative measure across time.

Although the author designed a simple Behavioural Indicator questionnaire (see Appendix 4.5) in consultation with care staff pre-arranged meetings to finalise this did not take place. This was a situation outside of the author's control and reflected the very intense work programme of the care staff. Regretfully the author accepted that co-operation on this scheme of behavioural monitoring was not going to happen.

The token economy scheme proved the most useful measure of comparative change. Full details of the system, as provided to parents, can be found in Appendix 4.3. Two of the children in the sample were not part of a token economy system and two others were removed from the scheme at the time of certain administrations as they were attempting re-integration into mainstream schooling. Apart from this, detailed information on daily and weekly progress in the token scheme was readily available. The amount of tokens received daily and weekly was directly related to the behaviour of the child, and being connected to a set amount of time provided a quantitative measure for comparison with test scores.

8.2.1.4. Style of Measures

Children with behavioural problems typically have difficulties with concentration, motivation and impulsivity and it was decided in consultation with the Head of Training at the school to limit sessions to no longer than 30 minutes duration at any one time. Likert scales for each of the questionnaires in the FQP were all adjusted to a five-point scale on recommendation, to make the activity easier for the children to handle. This inevitably had some consequences for the degree of analysis performed in that scores of BC and TD children on individual items on the FQP could not be compared. Administration of the tests was designed to be as friendly and interactive as possible. In the author's own experience of child observation and testing, children with behavioural problems find the completion of paper based measures both uninspiring and monotonous. This can lead to the child choosing the easiest option when completing a paper questionnaire; for example ticking all the boxes down one side of the page. This happened enough times in the author's experience during prior child testing for the decision to be taken to computerise all the measures to be used in this study to avoid the study being compromised by inattentive or frivolous responses. Description of the construction of the computerised methods used in this study can be found in Appendix 5 along with the actual materials used in the study.

8.2.1.5. Preparation of Materials

All measures were adapted for use with behaviourally challenged children in Study 4 as follows.

Questionnaire Pack and Picture Pack

The Questionnaire Pack and the Picture Pack were presented as computerised versions of the original paper versions as presented in Studies 1, 2a and 2b. The full measures can be found in Appendix 5.1 and 5.2; in the CD of Materials accompanying this thesis, along with full documentation of revisions of the measures. All scales on the QP were converted to five point Likert scales; two items which TD children felt particularly confusing were removed from the IECA to make it more appropriate for children. These were: "*It's silly to treat cats and dogs as if they had feelings like people*" and "*I get mad when I see a classmate pretending to need help from the teacher all the time*". These items were felt to be ambiguous with too many clauses to be readily interpretable. Other items with too many clauses were simplified. Content of the PP was unchanged.

MORPHO

The MORPHO test did not change from the version presented to the TD children in Study 3. All details about the design and operation of the MORPHO test can be found in the Method

section of Study 3 and all pictures used in the test can be found in Study 3 Appendix. The MORPHO measure can be found in Appendix 5.3 along with installation instructions..

Anxiety and Depression Indexes

The computerised presentation versions of the STAIC (State and Trait Anxiety indexes for children) and the CDI (Child Depression Index, short form) developed for this Study can be found in Appendix 5.4.and 5.5, along with full documentations of development and revision of materials.

Details of these adaptations, revisions of scales and the development of a 10 item STAIC screen for State Anxiety can be found in Appendix 5.4.

Scores for emotional competence and key competencies using the questionnaires in Study 4 were compared to reading age as well as chronological age. In addition, scores for perception, empathy and expression were to be compared to those of typically developing children of similar age brackets from Study 1. Raw scores were converted into percentages, which made the scales (with new Likert range) equivalent to the TD sample. These were converted into z-scores and finally standardised T scores using the mean scores and standard deviations of the normalising sample (See Appendix 1.8). This meant that each child's score would be compared to the normalising range of scores identified in Study 1.

8.2.2. Participants

The collection of a sample of 20 children with severe behavioural problems proved to be a lengthy and challenging task. Initially it was hoped that the full sample would be achieved from one residential school with a good population of male and female pupils in the age range seven to 11 years. However, although the school felt that the parents of most of the 30 or so children would be keen to participate in the study, in the event only 17 families agreed to the sessions. Two additional children declined to sign personal consent leaving a group of 15 children. Two children only completed one administration as they were unable to cope with the tasks. It was agreed with the staff at the school that they be withdrawn from any further testing. Unfortunately one of these was the only female student willing to take part, leaving an entirely male population of 13. These children were residential during the week and a token reward system operated in the school. Important considerations in finding the remainder of the participants were: 1) matching of the children to the typically developing children in the earlier studies and 2) suitable reading age. As mentioned in the Introduction to this study, children withdrawn for severe behavioural problems will inevitably have suffered from a lack of learning

over their time in mainstream schools, resulting for most in a global delay in basic subjects – reading, spelling (and often) mathematics. Whereas it was intended to have a mix of children of all ages from seven to 11 to take part in this study, most children under the ages of nine and 10 were considered by the schools as below a reasonable reading and comprehension age to cope with the tasks, particularly the questionnaire pack, which is a crucial part of the study. The author stipulated that the children should have a reading age of at least seven years and the comprehensive abilities to be able to understand the concepts they would be meeting.

Five additional children were obtained from a school for severe behavioural problems in the Enfield area. This school operated on day release and also ran a token economy system for behaviour management. The final two children were from a school for special learning difficulties in the Enfield area. These two children had been assessed as having a global learning delay but no specific learning difficulties. Their behaviour, however, had led to a lack of schooling. Two children in the sample of 20 were in the process of re-integration to a mainstream school.

8.2.2.1. Sample Details

The final sample for Study 4 comprised of 20 children with severe behavioural disorders, mean age 10.00 (SD 0.92); 19 boys and one girl. Apart from two children in years three and four, all the children in this study were in years five and six. This was due to two factors: poor reading age in younger pupils and unwillingness of parents of some younger children to allow them to take part in the study. Although four children had an assessed reading age of below seven years, all children exhibited an ability to read at least some of the materials in the study. A full account of this is given in the Method section. The chronological age range of the behaviourally challenged children in this study was from eight to 11 years; the age range of the typically developing children was from six to 11 years.

8.2.2.2. Ethical Issues

Ethical considerations regarding privacy, information and risk to the participant were considered. As Study 4 required repeated administrations and the divulgence of information as to the child's reading abilities, full information about the materials to be used in the study were made available to the school and full informed consent required from all parents (see Appendix 4.2). In the case of two of the schools used in this study, head teachers also spoke privately to each parent about the study to ensure they fully understood what was expected for their child. All written consent materials which were to be presented to parents and children were agreed

with the head teachers of each school before being made available. Consent from each child was obtained immediately prior to the first session by an adult working in the classroom with the children. This was chosen to ensure that the children did not feel pressurised to take part in the study, by allowing them to decide in the presence of someone they trusted. It was made very clear to class teachers that the child was not to be coerced in any way. This was considered a suitable strategy as it did indeed lead to a number of children declining to take part in the study although their parents had given permission.

Children were informed by the author that they would be given a special three figure number, which was their number alone, which would be used to identify their records. An exception to this initially was the MORPHO activity, where the child entered their name which became the experimental filename, and allowed the child to choose their record when re-entering the MORPHO activity at the second administration. These filenames were changed to numerical form by the author after the activity had been completed. Children seemed to be very pleased to be allocated a 'special number' and many remembered their number between sessions.

8.2.3. Procedure

Children were seen individually in a quiet room and were generally brought to the sessions by a member of the school staff.

8.2.3.1. Administration

The study was designed to take place over three administrative sessions, with no more than four tests per session. The first two sessions were ideally to be completed within two weeks of each other and the third session to be a re-test of three of the measures and to take place at least one month after the second session. On the occasion of a child not being able to complete a session within thirty minutes or indicating by their responses they had become tired, testing would cease for that day and the author return on the following available date to complete the session. Sessions were organised as follows:

Session 1: Full State Anxiety, MORPHO session one, Questionnaire Pack for perceived emotional competence, Depression Screen.

Session 2: Short scale State Anxiety, MORPHO second session, Picture Pack for emotional appraisal, Trait Anxiety.

Session 3 (Follow up): Short scale State Anxiety, Picture Pack for emotional appraisal, Depression Screen.

The administration of these sessions was carefully organised in conjunction with the Director of Research at the first special school. As a time limit of 30 minutes had been requested for each session, the first set of measures needed to be separated into two sessions which made both logistical and organisational sense.

It was the author's original plan to repeat the FQP at the time of the follow-up administration, to see if children's impressions of their emotional competence were consistent or changed over time. However, the school would not permit follow-up sessions to last more than 15 minutes which precluded using this measure. The Picture Pack was judged important to repeat as appraisal of others is not only an objective measure but may be subject to change dependent upon other situational and environmental factors, whereas a repeat of the FQP would have been for test-retest reliability, as it was not considered that emotional competence was likely to vary over that time period. It was therefore decided to repeat the PP along with the depression and state anxiety measures. Trait anxiety is a dispositional measurement and was considered unnecessary for the follow-up session. All measures were administered solely by the author during one-to-one sessions with each child.

8.2.3.2. Questionnaire Pack: Procedure

The FQP was introduced to the child as a computer activity. The literacy level of some of the participants was lower than would be expected for their age group, but these were one-to-one sessions and trouble was taken to make sure the child understood every stage of the procedure and in particular the meaning of the statements they were responding to. The author asked each child at the outset whether they would like to read the activity for themselves or have it read to them. Most children elected for the author to read it to them; a few started by reading themselves but soon found it easier if the statements were read aloud. After a friendly front page interface the child is asked whether they have worked on the FQP before. This enabled the child to return to the previous point in the activity if they had become tired or disengaged. Each child was given an identity number which enabled location of the correct record for subsequent sessions. A series of brightly coloured screens explained the activity and gave the child a chance to experiment with answering statements by selecting a position on a Likert scale with the mouse using the examples of foodstuffs they may or may not like to eat (see Appendix 5.1). Each questionnaire was framed using a different colour scheme, and at the end of each a prompt asked the child if they wanted to continue to the next level or finish until later. This device was constructed to allow the child the option of withdrawing until later if they were tired of the activity, but also to encourage the child to go on and complete the next questionnaire, which they generally thought of as a 'level'. It became apparent during testing that many children saw

this as a game and the concept of advancing to another level a personal challenge, which in itself made the activity more enjoyable and focussed the child's attention. At the end of the FQP a final screen asked the child if they had enjoyed the activity by requiring them to select one of three faces indicating 'liked it', 'not sure' or 'didn't like it'. The child was also given a chance by the author at this point to say how they felt about completing the questionnaires before moving on to the next activity. The FQP was administered during the first session with each child.

8.2.3.3. Picture Pack: Procedure

There were two procedures for administering the Picture Pack in Study 4, used at the author's discretion. Preferred was the Access Database which had a friendly interactive interface and was used with older participants and all those who demonstrated during session one that they had the concentration required to operate the interface and were reasonably proficient with the computer. The alternative for children who were easily distracted or found it physically difficult to select the option boxes was the PowerPoint interface. In both cases the administrator read through the wording on each of the introductory frames in order to make sure participants fully understood the task. The child was always asked if they would like the text read to them; all 20 children in the sample preferred this. After welcome and explanation screens (see Appendix 5.2) the child was presented with each of the 16 body postures in the same order as in Study 2. Care was taken that each child could read and understand the options available as many could not read the words unassisted. For both sections of the PP a series of prompts were used if the child failed to understand the task. If the child did not understand how to respond to the picture, a prompt was used, *"Imagine you have just seen this boy/girl and they are looking at you; maybe in the playground of your school. Looking at this boy/girl, which of these feelings do you think best fits them?"* The list would then be read. Several children wanted to choose 'happy' for a posture; this would be met with the prompt, *"Happy is not one of the choices for this picture. I'd like you to choose which of the feelings given here feel best fits this boy/girl. Would you like us to read them through again?"* For the Access version, the child used either the mouse or the 'magic pen'. For the PowerPoint version, the child used the 'magic pen' or their finger to point to the affect of choice.

8.2.3.4. MORPHO: Procedure

The procedure for MORPHO in Study 4 was identical to that of Study 3 except that sessions were individually administered. Some of the administrative sessions of MORPHO took longer than with TD children for two reasons. Firstly, these were difficult children who were happy to

be having individual attention and wanted to engage the author as much as possible. Many children wanted to 'play' with the interface quite extensively during the practice period and whilst it was important to focus the child on the activity it was also important to keep the engagement of the child, who could easily lose interest in a task. Secondly, many of the children in this sample had poorer literacy than would be expected for their age and could not read the words indicating the emotions. Some also expressed uncertainty as to what the emotions were, and these had to be explained.

8.2.3.5. Scoring of the Anxiety Measure

State Anxiety scores were doubled and the resulting score converted into a T score by the same process as for the entire scale. The threshold for clinical anxiety for the STAIC-T (trait) and STAIC-S is commonly considered to be 34 to 37 (Eley & Stevenson, 1999), based on normalisation tables which show 31 as an average score for nine to 11 year olds (Spielberger, 1973). For this study the cut-off for clinical anxiety was chosen to be 34 for a raw score, a threshold commonly used with children (Vila et al., 1999). Average T scores for STAIC-T and STAIC-S are judged to be around the 50 mark (Vila et al., 1999). As normalisation tables are only available for children aged nine to 11 years and a number of children in this study were of lower age, it was decided to use two comparative measures: raw scores and Z scores. As the STAIC-S measure used in the second and third administrations was a non-standardised short form, all scores for the three administrations were converted into Z scores for comparison between administrations of the STAIC. For comparison with other measures, raw scores were used.

8.2.3.6. Scoring of the Depression Measure

Depression was measured twice using a well standardised screening measure, the CDI-S (Kovak's Children's Depression Index Screen). Standardised scores of over 65 could be the threshold for depression, although the full measure including externalising and internalising scales would be recommended for any clinical diagnosis of depression (Kovacs, 2001).

8.3. RESULTS

This results section will be organised as follows:

- 8.3.1. Questionnaire Pack: comparison of BC children with other status groups in Study 1
- 8.3.2. Picture Pack (1st Administration): comparison of BC children with TD in Study 2
- 8.3.3. MORPHO: comparison of BC children with TD children in Study 3
- 8.3.4. Further Analyses: Picture Pack (comparison of two administrations); State and Trait (three administrations of State Anxiety); Depression (two administrations) and behaviour across time in relation to measures.

Behavioural indicators in the form of tokens were gathered over the time of the two administrations with BC children to enable examination of a child's emotional appraisal and perceived competence and the recorded incidence of externalising behaviours. Token scores will be correlated with 1) The Questionnaire Pack, 2) Appraisals of affect in the Picture Pack (choices of depressive, confrontational or intentional affect) and 3) Depression and anxiety scores. Sample statistics showing reading age of the sample and comparative reading age of Typically Developing peers can be found in Appendix 4.6.

8.3.1. Questionnaire Pack – Study 1

Scores on the FQP for children with behavioural disturbance (BC) were examined and primarily compared with scores from the typically developing sample (TD). As all but one child in the BC sample was male, female populations were not examined. Figures and tables supporting analysis of the FQP in Study 4 can be found in Appendix 4.9.

8.3.1.1. Correlation of Questionnaires: Comparison between BC and TD

The profile of correlations in the BC sample was closer to that of the TD sample than either the SEN or SEBD patterns in Study 1, as reflected in the cells marked with a dash in Table 39 overleaf.

	Intimate Expression	Overt Expression	Covert Expression	Inter-personal Perception	Intra-personal Perception	Affect. Emp	Cog Emp	APT-C	IECA	EEQ-C
Intimate Expression		** .675	** .532			** .749	** .282		** .557	** .804
Overt Expression	** .675		** .611	-	-	* .672		-		** .940
Covert Expression	** .532	** .611				** .537				** .735
Interpersonal Perception		-			* .464			** .951		
Intrapersonal Perception		-		* .464				** .591		
Affective Empathy	** .749	* .672	** .537				-		** .695	** .747
Cognitive Empathy	-					-		-	-	-
APT-C		-		** .951	** .591					
IECA	* .557		-			** .695	-			* .465
EEQ-C	** .804	** .940	** .735			** .747	-			
AGE			-		-		-	-	-	

* = Significant to $p < 0.05$; ** = Significant to $p < 0.01$

Table 39: Correlations between Questionnaire Scores and Age in the BC Sample

However, like both the SEN and SEBD groups, Cognitive and Affective Empathy did not correlate, and there was no correlation with Age for any of the scales; notably Affective Perception and Empathy. Unlike the TD group (or SEN and SEBD groups) significant correlations between Covert Expressivity and Intimate and Overt Expressivity were positive and not negative, indicating that BC children claim to be more expressive when they hide their emotions more. Scores between Covert Expressivity and Affective Empathy were also significantly positively correlated where they had been negatively correlated in TD and all other groups.

8.3.1.2. Comparing BC and TD Children in Questionnaire Scores

To explore possible significant differences in scores between BC and TD children in the three questionnaires and their sub-factors, and whether these were independent of age considerations, two-way between-groups analysis of variance (two-way ANOVA) was conducted for each of the three questionnaires. If homogeneity could not be assumed, one-way ANOVA was employed for each independent variable. Non-parametric Kruskal-Wallis (for Year at School) or Mann-Whitney U (for Status Groups) was used if assumptions of homogeneity could not be obtained for parametric tests. It was not possible to conduct a comparison between Anger items alone (Study 1) as scales for TD and BC groups were different (all BC tests used five-point Likert scales; Empathy had a nine-point Likert scale in Study 1). Converting all scores into

percentages before standardisation ensured that the use of different scales did not compromise the comparative analysis.

A two-way between-groups ANOVA was conducted to explore the impact of Status group and Year at School on Affective Perception. Main effects for both Status Group and Year did not reach statistical significance ($p=.506$ and $p=.233$ respectively). The interaction effect between Status and Year achieved statistical significance [$F(3,215)=4.326$, $p<0.01$] with a small to moderate effect size ($\eta^2 = .06$). Post Hoc testing with Tukey revealed BC children in year three scoring significantly higher than TD children in year three (mean difference 23.48), but significantly lower than TD children in year four (mean difference -14.94), as shown in Figure 36 below. No differences were observed between other years.

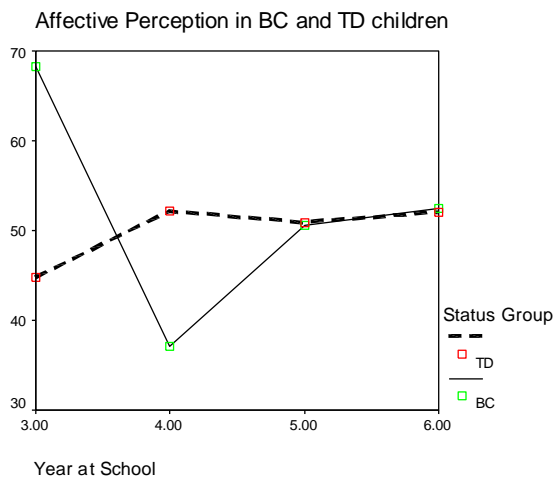


Figure 36: Interaction Between Year at School and Status

A two-way between-groups ANOVA was conducted to explore the impact of Status group and Year at School on Empathy. Main effects for both Status Group and Year did not reach statistical significance ($p=.785$ and $p=.205$ respectively). The interaction effect did not reach statistical significance ($p=.548$).

A two-way between-groups ANOVA to explore the impact of Status group and Year at School on Emotional Expressivity was compromised by a significant Levene statistic. Using one-way ANOVA, no statistically significant difference was found either for Status Groups ($p=.544$) or Year at School ($p=.142$).

8.3.1.3. Comparing BC and TD Children in Questionnaire Sub-Factors

A two-way between-groups ANOVA was conducted to explore the impact of Status group and Year at School on Interpersonal Perception alone. Main effects for both Status Group and Year did not reach statistical significance ($p=.488$ and $p=.150$ respectively). The interaction effect between Status and Year achieved statistical significance [$F(3,215)=4.592$, $p<0.01$] with a small to moderate effect size ($\eta^2 = .06$). Post Hoc testing with Tukey revealed BC children in year three scoring significantly higher than TD children in year three (mean difference 24.19), but significantly lower than TD children in year four (mean difference -15.98). No differences were observed between other years. Exploring differences in Intrapersonal Perception for Status Groups, the Levene statistic was significant for both two-way and one-way ANOVA. Mann-Whitney U found no significant difference between Status Groups in scores ($Z=-.252$, $p=.801$). One-Way ANOVA found no difference in scores between Years at School ($p=.071$).

A two-way between-groups ANOVA was conducted to explore the impact of Status group and Year at School on Affective Empathy. Main effects for both Status Group and Year did not reach statistical significance ($p=.485$ and $p=.150$ respectively). The interaction effect did not reach statistical significance ($p=.177$). For Cognitive Empathy alone, main effects for both Status Group and Year did not reach statistical significance ($p=.938$ and $p=.672$ respectively). The interaction effect did not reach statistical significance ($p=.186$).

A two-way between-groups ANOVA was used to explore the impact of Status group and Year at School on Intimate Expressivity was compromised by a significant Levene statistic. One-way ANOVA found a statistically significant difference between Status Groups for Intimate Expressivity scores [$F(1,220)=23.045$, $p<0.001$] with BC children scoring significantly higher than TD children (mean difference 11.43). The Levene statistic for Year at School was significant, and Kruskal-Wallis found a significant difference ($\chi^2(df3)=12.571$, $p<0.01$) with children in year four scoring lower than children in year six (mean difference -7.514). Two-way between-groups ANOVA to explore the impact of Status group and Year at School on Overt Expressivity was compromised by a significant Levene statistic. The Levene statistic for Status was also significant, and Mann-Whitney U found a significant difference ($Z=-3.440$, $p<0.01$) with TD scoring lower than BC children (mean difference -13.59). One-way ANOVA confirmed a significant difference between Years for Overt Expressivity [$F(3,218)=3.052$, $p<0.05$] but post hoc testing with Tukey failed to establish any significant differences between actual year groups. A Two-way between-groups ANOVA to explore the impact of Status group and Year at School on Covert Expressivity was compromised by a significant Levene statistic. One-way ANOVA found a significant difference for Status Groups [$F(1,220)=27.610$, $p<0.001$],

with BC children scoring significantly higher for Covert Expressivity than TD children (mean difference 12.70). One-way ANOVA for Year at School was non-significant ($p=.657$).

8.3.1.5. Sex Issues in Questionnaire Scores

As sex issues in expressivity were noted in Study 1, scores for TD males were compared against the male sample of BC children, as all but one child in this category was male, for the three sub-factors where significant differences were identified in the full sample: sub-factors of Expressivity. Mann-Whitney U found BC males scoring significantly higher than TD males for Intimate Expression ($z=4.253$; $p<0.001$), Overt Expression ($z=3.335$; $p<0.001$) and Covert Expression ($z=4.397$; $p<0.001$). No significant difference was found for Emotional Expressivity as a full scale. ($p=.981$), which contained items which were excluded from sub-factors as unreliable during item analysis. When unreliable items are removed, a significant difference is found for Expressivity ($Z=4.610$, $p<0.001$) with BC males scoring higher than TD males. BC males are scoring higher than TD for all aspects of Expressivity.

8.3.1.6. Predictive Value of Affective Skills and Differences

Because scales for the TD administration and the BD administration differed, it was not possible to directly compare the scores on the Affective Skills and Differences between populations. Linear regression was used to identify predictive relationships between the seven Affective Skills and Differences and three Key Competencies in BC children only. Very few affective skills and differences were related to key competencies as can be seen in Table 40 below.

Key Competencies	Affective Skills and Difference	t value	Significance Level
Affective Perception: Self and Other Oriented	Perceptual Skills	2.696	$p<0.05$
	Emotional Confidence	2.891	$p<0.05$
	Other APT-C Items not loading	4.027	$p<0.001$
Empathy: Knowledge and Quality	Other IECA Items not loading	4.036	$p<0.001$
Emotional Expressivity and Regulation	Emotional Intensity	3.227	$p<0.05$
	Emotional Reactivity	3.975	$p<0.001$
	Other EEQ-C Items not loading	3.421	$p<0.001$

Table 40: Relationship between Affective skills and key competencies in BC children

Notably for Empathy, only non-loading EC items were related to the scale; age of participant was also included but showed non-significant relationships in all cases.

8.3.1.7. Emotional Competence and Age Effects in BC Children

Significant Age effects were found in the TD population, with EC related to age in the male population only. As all but one BC child was male, females were excluded from analysis of Emotional Competence in this comparative study. There was no difference in Total Emotional Competence score between TD and BC males [$F(1,222)=2.161, p=.144$].

For BC children alone, Emotional Competence score did not correlate with either Year at School ($p=.232$), chronological age ($p=.483$) or reading age ($p=.436$) and there was no correlation between reading age and chronological age ($p=.178$). Using EC group (high, medium or low scores on the 48 item index) as a factor a one-way ANOVA was used to investigate whether affiliation to an EC group would predict the school year of BC children. Unlike the TD sample, affiliation to EC group did not predict year at school ($p=.296$) or their age ($p=.449$) for BC boys.

8.3.2. Picture Pack – Study 2 Emotional Appraisal

This section deals with the first administration of the PP in a comparative study with TD children from Study 2, where a standardised profile was established for responses to postures and faces in the test. Part 2a addresses the responses of BC children to the appraisal of emotion from full body pictures and makes comparison with the profile established for TD children. Part 2b examines the ability of BC children to ascribe the correct affect to emotional faces and examines the quality of reasons suggested for a change in emotion between two sets of expressions. Figures and tables supporting all these analyses can be found in Appendix 4.10. The second administration of the PP in Study 4 will be compared to the first in the final section of the results.

8.3.2.1. Part 2a – Body Postures

Responses to the 16 body postures included eight choices of feeling and confidence in choice. Each child's category response was scored in two ways: – as raw categories (and general affect) and as six ordinal categories (see Chapter 9.2) for inferential analysis, organised in states of arousal. Two specific choices, 'Like Fighting' and 'Like Playing' were investigated as intentional choices as they alluded to the child in the picture having intent towards the viewer, not just having an internal emotion. Descriptive data on the eight raw category responses and implications of this will be assessed before inferential analysis using the six category

Valence/Arousal system. Total scores for BC children of each of the four postures can be seen in Table 41 below, compared to scores from the TD sample.

	Hands Folded TD	Hands Folded BC	Hands in Pockets TD	Hands in Pockets BC	Arms Folded TD	Arms Folded BC	Hands on Hips TD	Hands on Hips BC
N	242	20	242	20	241	20	242	20
Mean	3.57	4.43	3.62	3.83	5.50	5.28	6.20	5.71
Median	3.50	4.38	3.50	4.00	5.50	5.63	6.75	6.38
Mode	4.00	3.25	3.00	4.25	6.00	5.75	8.00	6.50
St Dev	1.05	1.16	0.84	0.77	0.76	1.22	1.72	1.69
Min	1.00	2.00	1.00	1.75	2.00	1.75	1.00	1.75
Max	8.00	6.75	6.00	8.00	7.00	7.25	8.00	8.00

Table 41: Descriptive statistics for each of the four postures – TD and BC samples

Wilcoxon Signed Ranks test for non-parametric data was used to test for significant differences between ratings of each posture for BC children. Unlike the TD sample, comparison between ‘Hands in Pockets’ and ‘Hands Folded’ confirmed a significant difference ($z=2.088$; $p<0.05$), with the ‘Hands Folded’ posture being seen less positively than the ‘Hands in Pockets’ posture. A significant difference was found with the posture ‘Hands on Hips’ again being rated significantly more negatively than ‘Hands in Pockets’ ($z=3.475$; $p<0.01$) and ‘Hands Folded’ ($z=2.486$; $p<0.05$). Arms Folded was similarly rated as significantly more negative than ‘Hands in Pockets’ ($z=3.510$; $p<0.01$) and ‘Hands Folded’ ($z=2.709$; $p<0.01$). Unlike the TD sample, there was no significant difference for BC children between the ‘Hands on Hips’ condition and the ‘Arms folded’ ($z=1.178$; $p=0.239$).

8.3.2.1.1. BC Children and Individual Postures

The response of BC children to the individual postures was compared to that of the TD sample. A supplement of graphs showing pictorially the responses of BC and TD to both postures and ethnicity of postures can be found in Appendix 4.7 and indicate visually the difference in scoring profiles.

Analysis with Mann-Whitney U showed BC children are seeing the ‘Hands Folded’ position as significantly more negative than TD children: $z=3.286$; $p<0.01$. It must be noted that a negative assessment includes both confrontational and depressive affect.

8.3.2.1.2. BC Children and General Affect Appraisals

Statistical analysis was performed to investigate differences in the number of times children from the two status groups made confrontational or depressive appraisals of affect or intentional

choices ('like fighting' or 'like playing'). Table 42 shows mean occurrences of affect for TD and BC children.

	Hands on Hips		Arms Folded		Hands in Pockets		Hands Folded	
	TD	BC	TD	BC	TD	BC	TD	BC
Chose 1: friendly	26.3	30.0	1.6	15.0	22.2	40.0	30.5	20.0
Chose 8: confrontational	63.8	55.0	9.9	25.0	1.6	20.0	6.2	25.0

Table 42: Mean occurrences of choice: contrast of status groups

Looking at intentionality and confrontational affect with TD and BC children, BC children are choosing 'Like Fighting' significantly more than TD children: $z=2.123$; $p<0.05$. No other significant differences were found.

8.3.2.1.3. Intentionality

Looking at intentionality in more detail, no significant differences were found between TD and BC children in the occurrence of rating intentionality or 'like fighting' to any sex or ethnic stimulus groups, that is White as opposed to Black presentations; boy as opposed to girl postures. Looking at BC children alone and attitude to sex and ethnicity of stimulus, there was no significant difference in how they rated sex and ethnic groups for intentionality. Table 43 below shows the percentage of children in TD and BC groups who appraised either friendly or confrontational intentionality to each of the four postures.

Choice of Affect	BC	TD
'Like fighting'	6.30	5.82
'Like fighting' or 'Angry'	5.40	5.16
'Like fighting', 'Angry' or 'Grumpy'	4.10	3.56
'Sad' or 'Lonely'	2.15	1.33
'Like Playing'	1.55	1.65

Table 43: Percentage of children choosing type of intentionality

A Kruskal-Wallis test revealed BC children viewed three postures as significantly more confrontationally intentional than TD peers: 'Arms Folded' ($\chi^2(2)=7.035$; $p<0.05$), 'Hands in Pockets' ($\chi^2(2)=22.987$; $p<0.01$) and 'Hands Folded' ($\chi^2(2)=9.613$; $p<0.01$). BC children also saw 'Arms Folded' as significantly more intentionally friendly than TD children ($\chi^2(2)=12.427$; $p<0.01$).

Looking at choices of affect, participants in BC group were compared for whether they chose general confrontational affect (grumpy, angry, like fighting) significantly more than TD children. They did not; the difference was in 'like fighting' category alone. There were no other significant differences between BC and TD groups. Occurrences of depressive affect (sad, lonely) in the BC sample were negatively correlated with moderately confrontational affect (choosing grumpy, angry and like fighting) both in first ($r = -.485$; $p < 0.05$) and second administrations ($r = -.708$; $p < 0.01$).

8.3.2.1.4. Inferential Analysis: BC Children and Six- Category Responses

For inferential analysis participant's raw scores were transformed into a six-category Arousal/Valence scale (Chapter 5). This allowed the participants' appraisals of affect to be reliably handled as ordinal data and facilitate analysis with quantitative methods. Wilcoxon Signed Ranks was used to investigate how children in Study 4 viewed the different ethnic and sex stimulus presentations; for example Girl Black as opposed to Girl White or Boy Black (see Table 44 for means).

	Mean	Std. Deviation	Minimum	Maximum
Boy Black all Postures	4.3625	.7800	1.75	5.00
Girl Black all Postures	4.2000	.7889	2.50	5.25
Girl White all Postures	3.8875	.6953	1.75	5.25
Boy White all Postures	3.6000	.8406	1.75	5.00
Black Postures	4.2813	.6821	2.13	5.13
White postures	3.7438	.6418	1.75	4.63
Boy Postures	3.9813	.6680	1.75	4.63
Girl Postures	4.0438	.6416	2.13	4.88

Table 44: Descriptive statistics for sex and ethnicity of stimulus in BC sample

Black presentations were rated overall as more negative in affect than White presentations ($z = 3.144$; $p < 0.01$). Mean scores for Girl Black and Boy Black showed no significant difference ($z = 0.615$; $p = 0.538$). Again between Girl White and Boy White there was no significant difference ($z = 1.682$; $p = 0.091$). However, Boy Black was rated as more negative in affect than Girl White ($z = 3.142$; $p < 0.01$) and than Boy White ($z = 2.869$; $p < 0.01$). Girl Black was rated more negatively than Boy White ($z = 2.423$; $p < 0.05$), but there was no difference between Girl Black and Girl White ($z = 1.884$; $p = 0.06$). Boy White was rated the least negatively of all the sex and ethnic options. Looking at Sex of stimulus, there is no significant difference in the BC sample in the rating of Boy and Girl postures as a whole ($z = 0.503$; $p = 0.615$).

8.3.2.1.5. Confidence in Choice

As part of the comparative study with behavioural children to investigate confidence in emotional choice, participants were asked how sure they were about their choice. Children chose from three options where 3= very sure, 2= quite sure and 1= not sure. As can be seen in Table 45 below, across all 16 presentations, most children in the Typically Developing sample chose ‘Quite’ sure or ‘Very’ sure, although approximately 20% were also not sure about their choice.

Choice	TD	BC
Very Sure	1756	49
Quite Sure	1612	112
Not Sure	417	152
Cases	3888; n=243	320; n=20

Table 45: Number of times children chose levels of certainty across all presentations

In contrast, BC children are predominantly ‘Not sure’ or secondarily ‘Quite Sure’ of their choices. Comparing TD and BC children using Mann-Whitney-U found that BC children were choosing ‘Very Sure’ significantly less than their typically developing peers ($z=5.102$; $p<0.01$). They were also choosing ‘Not Sure’ significantly more often than TD children ($z=5.344$; $p<0.01$). No significant difference in certainty choices for male and female stimulus postures was found between BC and TD children.

8.3.2.2. Part 2b – Emotional Faces

In the second part of the PP children were presented with two sets of faces and asked to 1) Give an appropriate emotion for each of the faces; 2) Give a reason why the emotion might have changed in each pair of faces. The first set of faces showed a ‘non-white’ boy, in the first picture happy, in the second sad. The second set of faces showed a ‘white’ girl, in the first picture angry, in the second happy. Please see Study 2b and Chapter 6 for details of stimulus and scoring.

Secondly, the response to the open question “if the feeling has changed why might this be?” was examined in two ways. Firstly, whether the reason given was appropriate to the emotions provided, and secondly, the quality of the response was scored for sophistication and mentalising capacity. The mentalising categories were scored as: 0 = No answer or wholly inappropriate answer, 1 = Physically based answer – no emotional or social content, 2 = Socially based answer – reasonable but with little emotional content, and 3 = Mentalising

answer – sophisticated answer with an implicit or explicit reference to emotional change. Examples and explanations of the types of responses within each of the four categories above can be found in a supplement to Study 2; Appendix 2.4. Full details of the coding scheme and how these categories were allocated can be found in the Method section for Study 2b, Chapter 6.2.1.3. Choice of emotion and reasons for change are compared with the patterns of the standardisation sample of typically developing children in Study 2.

8.3.2.2.1. Identifying Emotions

The majority of children in both behaviourally challenged and typically developing groups chose the target emotion for all four faces. Children found the happy and sad faces easier to categorise than the angry face (see Appendix 4.8 for graphs of each status group). For BC children alone, there was no significant difference between the choice of emotion for boy or girl stimulus faces. There was no significant difference in the ability to choose an appropriate emotion for any of the four faces between the TD and BC children; a strong consistency was seen between TD and BC samples in rating expressions.

8.3.2.2.2. Reasons for Emotional Change

No significant difference was found in reasons for emotional change for Boy and Girl in the BC group. No significant difference was found either in the choice of reason for change between TD and BC for either boy reasons ($z=0.169$; $p=0.866$) or girl reasons ($z=1.512$; $p=0.131$). In Study 2b a developmental effect was found with older children giving more sophisticated, mentalising reasons than the younger children. It should be noted that the mean age for the BC sample was higher than the other two groups, which could compromise any effect due to status alone. Multivariate ANOVA showed a main effect for age across all three groups for both Boy reasons: $F(1,267)=20.278$; $p<0.01$, and for Girl reasons: $F(1,267)=36.217$; $p<0.01$ but with no interactions for status groups. Due to small sample sizes, Kruskal-Wallis test was used to explore any age related effect for age in the Behaviourally Challenged group alone. This found a non-significant effect for age for both boy and girl reasons for change. It is doubtful that this result can discount an age effect, however, as there were only two children aged eight and two aged nine; 16 out of 20 children were in the 10-11 age group.

8.3.3. MORPHO – Study 3

Following presentation of Feedback response, MORPHO analysis in Study 4 investigated the response of BC children to the stimulus and compared this sample with 85 children TD children from Study 3. Analysis will be presented in two main sections:

- 1) Consistency between sessions: using the comparative point of uncertainty for each of the 13 different emotional transitions, were children consistent in where they were judging the point of transition, or were they haphazard and changed between sessions, and
- 2) Persistence of certain emotions or emotional blends: the effect of viewing emotions from different directions.

Persistence of emotion in all blends is compared, as are responses related to angry and fearful faces (see Introduction and Method, Study 3: Chapters 7.1 and 7.2), same and opposing valence transitions (negative/negative as opposed to negative/positive) and emotion/emotion and emotion/neutral presentations. Figures and Tables supporting Study 4 analyses of MORPHO can be found in Appendix 4.12

8.3.3.1. Feedback

Children were asked to make a three-category choice to evaluate the activity in terms of how much they liked it (Activity Evaluation), how easy they felt it was to understand the task (Task Evaluation) and how easy it was to discriminate between the different facial expressions (Faces Discrimination). Response to the activity was varied, as can be seen below in Table 46. Examination with Chi-Square found significantly more BC children liked the activity than disliked or were not sure about it: 1st session $\chi^2(2)=10.90$; $p<0.01$; 2nd session $\chi^2(2)=7.60$; $p<0.05$. Significantly more children said they understood the activity than found it difficult or were not sure: 1st session $\chi^2(2)=9.10$; $p<0.01$; 2nd session $\chi^2(1)=7.20$; $p<0.01$. Significantly more children said they found the faces easy to discriminate between than were either unconfident or not sure: 1st session $\chi^2(2)=7.90$; $p<0.01$; 2nd session $\chi^2(2)=9.70$; $p<0.01$. This is a similar profile to that of TD children.

Activity Evaluation - Time 1			Task Evaluation - Time 1			Faces Evaluation - Time 1		
Liked it	Not Sure	Didn't Like	Easy Task	Not Sure	Didn't Understand	Knew Faces	Not Sure	Difficult to Recognise
13	6	1	12	7	1	11	8	1
Activity Evaluation - Time 2			Task Evaluation - Time 2			Faces Evaluation - Time 2		
Liked it	Not Sure	Didn't Like	Easy Task	Not Sure	Didn't Understand	Knew Faces	Not Sure	Difficult to Recognise
12	6	2	16	4	0	13	5	2

Table 46: Feedback from participants about the activity

Evaluation scores for Activity Evaluation and Task Ease did not correlate across both sessions, although they did in the TD sample, indicating less consistent attitudes toward the test. The Faces Evaluation did however correlate strongly ($r_s=.695$; $n=20$; $p<0.01$), suggesting children were equally confident about their ability to discriminate faces on both occasions. There were no significant differences between sessions for Activity Evaluation or Task Ease; children did not find the activity more or less pleasurable or the task easier on the second time round.

8.3.3.2. Consistency

8.3.3.2.1. Emotional Transitions: Response To Emotional Pairs

As MORPHO contained two sessions, each participant saw the transition from two viewpoints – for example the one presentation gave a transition of ‘Angry’ to ‘Happy’, which was repeated as the transition ‘Happy’ to ‘Angry’. Figures 37 and 38 show comparative scores for each directional blend of the 13 emotional transitions and give an indication of the consistency between sessions.

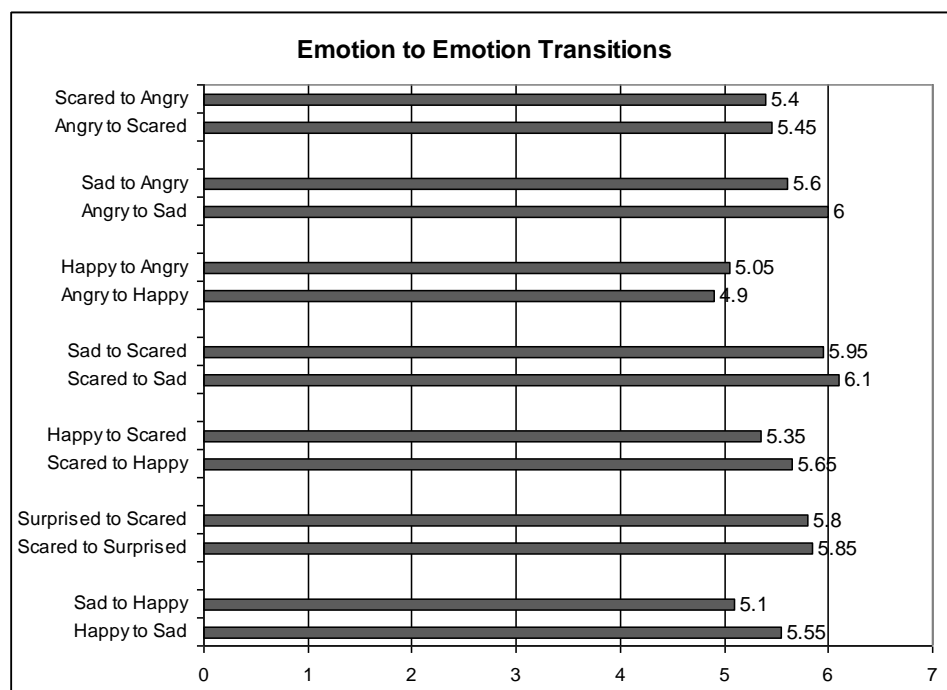


Figure 37: Means for the seven Emotion to Emotion pairs in Study 4

Full mean, median and mode values for each of these transitions can be found in Appendix 4.12. Although there were occasional extreme scores from some participants, as with TD children, most BC children appeared to be seeing the point of uncertainty for each emotional transition.

around the same point, which for most was around the centre (point 5) of the interpolation. Some transitions had a full range of scores, from the minimum of 0 to a maximum of 10, which are the two extreme points of emotion, which is arguably a sign that the child made a mistake or had not understood the activity.

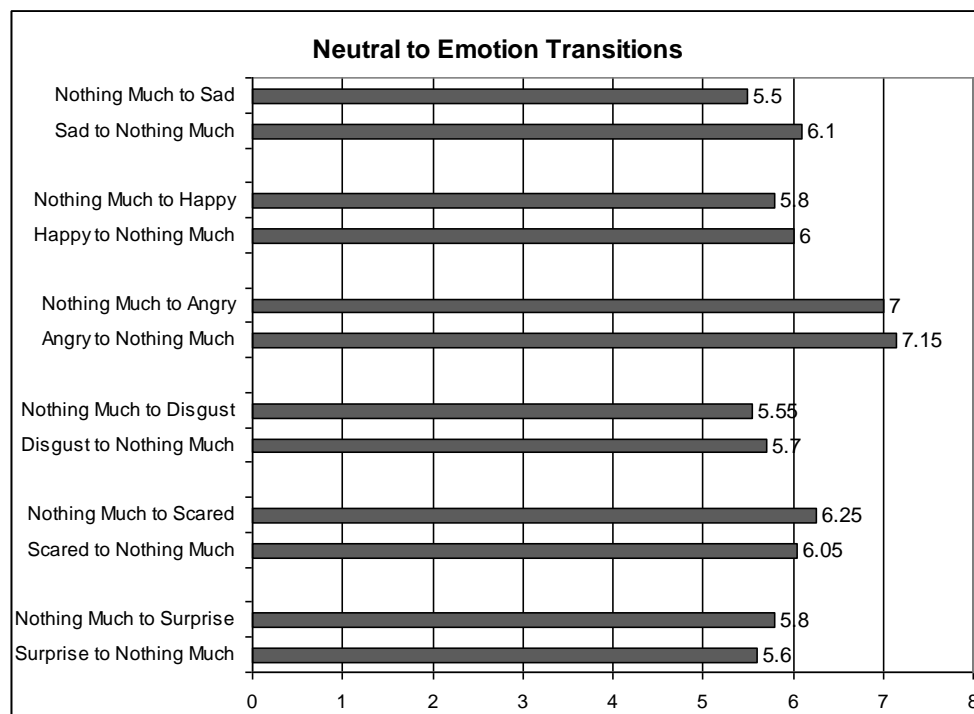


Figure 38: Sample statistics for the six emotional to neutral pairs in Study 4

Some pairs had markedly different transition points than others (compare the ‘angry/nothing much’ transitions above with the ‘disgust/nothing much’ profile). These patterns of response are interesting but inferences can only be made if all children are scoring similarly, rather than mean scores being affected by extreme variation. Paired t-tests (which carry a high chance of type-I error) found no significant difference between any paired transitions as seen above, showing all children were handling the emotional pairs similarly.

8.3.3.2.2. Consistency Between Sessions of Same Emotional Transition

Emotional transitions were presented twice with the likelihood that a child would determine the point of change earlier or later dependent upon the direction. The point at which change was determined was counted as the child’s score. A Total Consistency score was calculated for each participant (see Chapter 7.3.1.2.1).

Variations in point of uncertainty occurred in all transitions but no significant differences were found for consistency in any separate transitions between TD and BC children.

Using ANOVA no significant difference in Total Consistency scores in Study 4 was found between older and younger age groups, age or year at school. Comparing the BC sample with the TD sample, no significant difference was found for Total Consistency. Some children in the BC sample are scoring very inconsistently but this is not true of the sample as a whole and the variation in scores was not as wide as the TD sample.

There were no significant differences for age (examined by year, age and age group) for total consistency in any of the 13 individual transitions.

There was a possibility that consistency between sessions may vary depending upon the order that the transitions were shown, that is 'Sad' first on a 'Sad' to 'Happy' transition, or 'Happy' first on the same transition. However, ANOVA found no significant differences dependent upon presentation order for any of the 13 emotional transitions in the BC sample.

It was possible that consistency was affected by the type of emotional presentation. Using paired sample tests no significant difference was found with BC children for consistency between different valence (negative/positive and negative/negative) presentations. No significant difference was found in Consistency between 'emotion/emotion' transitions and 'emotion/nothing much' transitions. This result follows the same pattern as for the TD sample, where no significant differences in consistency for any type of emotional presentation were found. No significant difference for any emotional variation was found between TD and BC children.

The possible effects of the sex of the stimulus on the consistency of response in the sample were considered. No differences were found using ANOVA between the general response of BC participants to male and female stimulus faces. This is consistent with the TD sample in Study 3 where no significant difference in the consistency of males viewing either male or female faces was found. Study 3 had found a significant difference in consistency in the rating of female and male faces with males showing more consistency viewing male faces, but due to a lack of female participants in the BC sample, interactions between sex of stimulus and sex of participant could not be examined. There were no significant differences in consistency in rating either male faces or female faces according to year at school, age or age groups.

8.3.3.3. Persistence of Emotion

MORPHO presented seven emotions (including ‘Nothing Much’) in 26 possible directional blends. ANOVA was used to investigate any significant difference in the way typical versus behavioural children viewed basic emotional blends. Numbers of children for age and years at school were extremely unequal and it was decided use the category ‘Age Group’ for analysis: younger children (years three and four) and older children (years five and six). No significant differences were found between older and younger children in any of the emotional blends.

8.3.3.3.1. Differences between TD and BC Children Groups for Presentation

Across 26 transitions, only three showed significant differences in the point of uncertainty between Typically Developing and Behaviourally Challenged children. Three items alone showed TD children finding an earlier point of uncertainty than BC children: ‘Scared to Happy’ $F(1,103)=4.623$; $p<0.05$, ‘Nothing Much to Happy’ $F(1,103)=3.970$; $p<0.05$, and ‘Sad to Nothing Much’ $F(1,103)=6.853$; $p<0.05$. No other differences were found.

8.3.3.3.2. Different Types of Emotional Presentation

The point at which the child determined that an emotional transition was taking place could have been influenced by the type of presentation. Mean scores for BC children were therefore examined according to the type of emotional presentation. Six out of the 13 presentations included the option ‘Nothing Much’ and only two transitions included same ‘negative/negative’ valence transitions: ‘Angry’ to ‘Sad’ and ‘Angry’ to ‘Scared’, with no ‘positive/positive’ emotional transitions. The remaining five transitions were ‘negative/positive’. Types of emotional presentation were investigated in concordance with analysis performed in Study 3 for TD children, see Chapter 7.3.3.1. Problems with homogeneity in comparison of unequal sample groups prompted the decision to use non-parametric analysis for the above. Wilcoxon Signed Ranks testing was employed.

8.3.3.3.3. Presentation by Emotionality

Unlike the TD sample no significant differences were found for the BC children between scoring for ‘emotion/emotion’ and ‘emotion/neutral’ presentations. However, BC children see the appearance of an emotion from a neutral face (mean point of uncertainty 4.01) much earlier in the interpolation than they detect the change away from that emotion (mean point 6.10). An emotion emerging from a neutral face was detected comparatively quicker than the emotion left perception ($z=3.639$; $p<0.01$). As with the TD sample, a marked persistence for the emotion is seen when an emotion returns to neutral whilst viewing facial expressions. BC children are also seeing the emergence of an emotion from a neutral face earlier in the interpolation than they are seeing any other emotion to emotion transition ($z=3.883$; $p<0.01$). Looking at individual

emotion and neutral face transitions, significant differences were found for all transitions except that of Sad and 'Nothing Much'. Disgusted was recognised earlier in the transition from the neutral face and was retained longer ($z=2.027$; $p<0.05$) as was Angry ($z=3.946$; $p<0.01$), Surprised ($z=2.352$; $p<0.01$), Scared ($z=3.240$; $p<0.01$) and Happy ($z=2.777$; $p<0.01$) and Sad ($z=2.546$; $p<0.01$). In the TD sample all but the 'Sad to Nothing Much' transition showed this pattern.

8.3.3.3.4. Presentation by Valence

Like the TD sample, no significant difference was found for BC children between 'positive/negative' emotional transitions and 'negative/negative' emotional transitions. Children did not identify the perceptual shift from one emotion to another emotion at a later point when presented with a negative emotion changing to another negative emotion than when a negative emotion changed to a positive emotion. In conclusion, as with the TD sample, the type of emotional transition makes little difference to the aptitude of BC children to see one emotion emerging from another. BC children, like their peers, are only seeing an emotional transformation in a face significantly earlier in the interpolation where the change is from a neutral face to a valenced emotion.

8.3.3.3.5. Viewing Angry and Fearful Faces

Interesting effects for anger and fear stimuli were observed in Study 3 where TD children saw earlier transitions for MORPHO presentations that moved *towards* 'Anger' from the neutral face than for 'Happy', 'Sad', 'Scared' or 'Disgusted', compared to items that moved *away* from anger or did not include anger in the transition. Comparisons were also made between mean scores of items containing fear as an emotion (towards 'Scared' versus away from 'Scared') and between items involving a transition towards 'Scared' as opposed to another emotion. Anger was not found to be dominant in emotion/emotion transitions, apart from with sadness. Fear, however, was not dominant in emotion/neutral transitions but dominant over sadness and surprise in emotion/emotion transitions. As with Study 3, anger and fear related transitions were compared to non-anger and non-fear related transitions (see Chapter 7.3.3.2). As scores from one item were being compared with mean scores from combined items, non-parametric testing (Wilcoxon Signed Ranks) was used.

Anger in Emotion-Emotion transitions

Like the TD sample, a significant difference was found for BC children between scores for transitions towards or away from Anger items with Anger being detected earlier in a transition from other emotions than other emotions are detected from Anger ($z=2.911$; $p<0.01$). Looking at individual emotion/emotion transitions, a significant difference was found for anger in the 'Angry-Sad' transition ($z=3.145$; $p<0.01$) but not in the 'angry-happy' transition. Unlike the

TD sample, anger was also dominant in the 'Angry-Scared' transition ($z=2.578$; $p<0.01$), being recognised comparatively significantly sooner than anger. No significant difference was found between happiness and anger.

Anger/Neutral Blends Versus Non-Anger/Neutral blends

A significant difference was found for BC children between Angry to 'Nothing Much' transitions (mean 7.15) and other the mean score of other emotions to 'Nothing Much' (mean 5.89): $z=3.027$; $p<0.01$, indicating that, as in the TD sample, children took longer to discern the dissolution of Anger than any other valenced emotions. Looking at Anger versus other emotions emerging from the neutral face, children are again seeing Anger emerging significantly earlier in the transition from a neutral face (mean 3.0) than other emotions generally (mean 4.22): $z=3.832$; $p<0.01$.

Individual Emotions Versus Anger to Neutral Face

Individual emotion transitions to neutral faces were examined, to determine whether this was common to all emotional transition (as was the case with the TD sample) with the follow results: Anger resolved significantly later in transitions to the neutral face (it was retained in the perceptual memory longer) than Surprised ($z=3.209$; $p<0.01$), Scared ($z=2.409$; $p<0.05$), Happy ($z=2.269$; $p<0.05$), Sad ($z=2.077$; $p<0.05$) and Disgusted ($z=2.660$; $p<0.01$). This pattern is the same as was observed in the TD sample.

Individual Emotions Versus Anger From Neutral Face

As with the TD sample, Anger was detected significantly *earlier* in the transition towards emotion from the neutral face than was Surprise ($z=3.401$; $p<0.01$), Scared ($z=2.627$; $p<0.01$), Happy ($z=2.633$; $p<0.01$), Sad ($z=2.974$; $p<0.01$) or than Disgust ($z=3.517$; $p<0.01$). BC children are recognising anger faster from a neutral face than any other emotion like TD peers.

Fear in Emotion-Emotion Transitions

A significant difference was found between 'Scared' to 'Nothing Much' and 'Nothing Much' to 'Scared', with fear being detected quickly in the transition (mean score 3.75) and retained longer when interpolated to the neutral face (mean score 6.05); $z=3.240$; $p<0.01$. A significant difference was also found between emotions towards Scared and away from 'Scared' ($z=2.836$; $p<0.01$), with Scared being detected at an earlier point in the interpolation for transitions towards Scared. Anger was recognised sooner than fear (as above) but fear was recognised sooner than surprise ($z=2.605$; $p<0.01$) and than sadness ($z=3.332$; $p<0.01$). As with anger, no significant difference was found between fear and happiness.

Fear/Neutral Blends Versus Non-Fear/Neutral Blends

As with the TD sample no significant difference was found between Scared to the neutral face and mean scores of other emotions to the neutral face. No significant difference was found between the 'Nothing Much' neutral face transition to Scared and transitions from the neutral face to the mean score of all other emotions.

Individual Emotions Versus Fear to Neutral Face

The only significant difference found in this category was that mean scores from Scared to neutral were lower than mean scores for Angry to neutral (as already determined); participants were seeing the resolution of fear sooner than the resolution of anger. No other significant differences were found. A difference between sadness and fear observed in the TD sample was not seen.

Individual Emotions Versus Fear From Neutral Face

Looking at the emergence of emotions from the neutral face, a significant difference was found for fear, with Scared being detected significantly earlier in the interpolation than Disgusted ($z=2.254$; $p<0.05$) and Sad ($z=2.027$; $p<0.05$). This was in common with the TD sample in Study 3, as was anger being identified in the transition from a neutral face earlier than fear. 'Nothing Much' to 'Sad' had the highest mean score of all emotion to neutral transitions, indicating it took longer in the interpolation to be recognised as appearing.

Difference in Fear/Anger Responses: BC and TD Children

Only one significant difference was found in responses to Fear and Anger stimuli between scores of the BC and TD groups. For items from Scared or Angry to the neutral face and from the neutral face to Scared or Angry, the same pattern of responses were seen. No difference was apparent in emotional transitions towards or from Scared. However, whereas TD children did not discern the transition towards Anger from Fear or Fear from Anger significantly differently, BC children did. Anger was detected sooner in an emotional blend with Fear in BC participants, but not in TD participants. Apart for this one aspect, children from both groups are responding no differently to presentations including Fear and Anger.

8.3.3.3.6. Sex Effects in Mean Scores: Stimuli Versus Participants

The possible effect of the sex of the stimulus, whether it was a male or female face, on the mean scores of participants was investigated. No difference was found using ANOVA in the general response of BC children to male or female faces. Examination of any interaction between male and female participants and sex of stimulus was not possible with only one girl in the sample.

8.3.4. Further Analyses

Supporting tables and figures relating to additional analyses can be found in Appendix 4.12.

8.3.4.1. Consistency in Picture Pack administration

The PP was administered on two occasions to children with severe behavioural problems. This allowed for comparison between sessions in choice of posture, choice of affect and reasons for emotional change.

8.3.4.1.1. Consistency in Choice of Postures

It was to be expected that a child would not rate the same posture identically on each administration. In comparing eight category raw scores, 'Black Girl Hands on Hips', was appraised significantly more negatively on the second viewing: $z=2.509$; $p<0.05$; the most frequent appraisal changing to 'Like Fighting', from 'Angry'. The mean score of 5.65 for the first administration, along with a standard deviation of 2.46, indicated a wider range of scores initially than on the second viewing where the mean score was 6.90 and the standard deviation of 1.66 for the second administration. Analysis using the six category ordinal scale showed no significant difference between administrations for any posture.

8.3.4.1.2. Consistency in Choice of Postures: Sex and Ethnicity Considerations

Examining the four different ethnic and sex combinations, ANOVA found a significant difference only between administrations for Girl Black presentations: $F(1,37)=4.354$; $p<0.05$, which was rated more negatively. However, the Levene was highly significant for this presentation alone. Analysis with non-parametric Mann-Whitney U found no significant difference. No other differences were found.

8.3.4.1.3. Consistency in Reasons for Emotion Change

The accuracy of attribution of emotion to the first 'Girl' face (angry) improved significantly from Admin 1 to Admin 2: $\chi^2(1)=5.243$; $p<0.01$. This was considered the most ambiguous facial emotion to interpret. Girl faces acquired the highest scores for maturity of reason in the first administration, but no difference was found between administrations. No other differences were found between administrations.

8.3.4.1.4. Consistency in General Affect and Intentionality choices

No significant difference was found in the number of occasions where intentional postures were chosen between the two administrations, neither was there any significant difference in the amount of negative, depressive and confrontational appraisals.

8.3.4.1.5. Intentionality and Confrontational Affect: Correlations with MORPHO

In order to establish whether the detection of anger in facial expression was connected to confrontational appraisal, MORPHO scores for Anger transitions (to-, from- and not including, anger) were compared to the choice of confrontational postures (including intentional confrontation) in the PP. No significant correlation was found.

8.3.4.2. Anxiety: State and Trait (Three Administrations of State Anxiety)

Both State and Trait anxiety were measured for the children in Study 4: Trait anxiety at the time of the second administration, State anxiety at all three administrations. A modified short form of the State anxiety scale consisting of 10 items was used for the second and third administrations. Full description of the development of, and items, on the short form can be found in Appendix 5.4. and details of scoring and cut-offs for clinical anxiety in Chapter 8.2.3.5.

Paired-t-tests found no significant difference between State anxiety z-scores for all three administrations. Z-scores for State anxiety for first and second administrations were significantly correlated ($r=.476$; $p<0.05$), showing a consistence in the occurrence of situational anxiety for the children between the first two sessions; but administrations 2 and 3 were not, although there was no significant difference. Correlations between Z scores for State Anxiety across administrations and standardised scores for Trait Anxiety can be seen in Appendix 4.13. Scores for Trait anxiety scores (Admin 2) showed a significant positive correlation with State anxiety Z scores for that same admin ($r=.493$; $p<0.05$), but not for the other two administrations.

8.3.4.2.1. Anxiety and Perceived Emotional Competence

Anxiety and emotional competence was explored by means of the FQP and related to affect perception, empathy and emotional expressivity. Correlations between children's T scores for emotional competence and State and Trait anxiety can be seen in Table 47 overleaf. T scores for the three questionnaires were compared with T scores on the STAIC State anxiety test (first session) and the Trait anxiety test (second session). A significant positive correlation was found between the EEQ-C questionnaire and Trait anxiety ($p<0.05$). T scores for Overt emotion were positively correlated with Trait anxiety ($p<0.01$).

	Pearson	State Anxiety	Trait Anxiety
APT-C T scores	Correlation	-.268	-.149
	<i>Sig. (2-tailed)</i>	.253	.530
IECA T scores	Correlation	.107	.009
	<i>Sig. (2-tailed)</i>	.653	.969
EEQ-C T scores	Correlation	.291	.469
	<i>Sig. (2-tailed)</i>	.213	.037
IECA-R Affective Empathy	Correlation	.151	.290
	<i>Sig. (2-tailed)</i>	.524	.215
IECA-R Cognitive Empathy	Correlation	-.078	-.393
	<i>Sig. (2-tailed)</i>	.743	.087
EEQ – Intimate Expression	Correlation	.389	.275
	<i>Sig. (2-tailed)</i>	.090	.240
EEQ – Overt Expression	Correlation	.162	.570
	<i>Sig. (2-tailed)</i>	.495	.009
EEQ – Covert Expression	Correlation	.425	.273
	<i>Sig. (2-tailed)</i>	.062	.244
APT-C Interpersonal Perception	Correlation	-.079	-.083
	<i>Sig. (2-tailed)</i>	.741	.726
APT-C Intrapersonal Perception	Correlation	-.529	-.038
	<i>Sig. (2-tailed)</i>	.016	.874

Table 47: Correlations between anxiety scores and perceived emotional competence

No correlations were found between anxiety and either Cognitive or Affective empathy, but a significant negative correlation ($p < 0.05$) was found between Intrapersonal Perception and State anxiety. No correlation was found with Interpersonal Perception.

8.3.4.2.2. Anxiety and Emotion Appraisal

There was no significant correlation between State or Trait anxiety and the incidence of choice of either depressive or confrontational emotions on the Picture Pack. No significant correlation was found between either State or Trait anxiety and scores for consistency in MORPHO, suggesting that anxiety was not affecting their abilities to consistently discern emotional transition.

8.3.4.3. Depression: Two Administrations

Mean scores for the CDI-S fell in the 45-55 average bracket, indicating non-depression. Figure 39 below shows details of scoring in the first and second administration, according to Kovak's categories of depression. A total of 65% of behaviourally challenged children are designated as 'not depressed', with 40% scoring in the 'average' category.

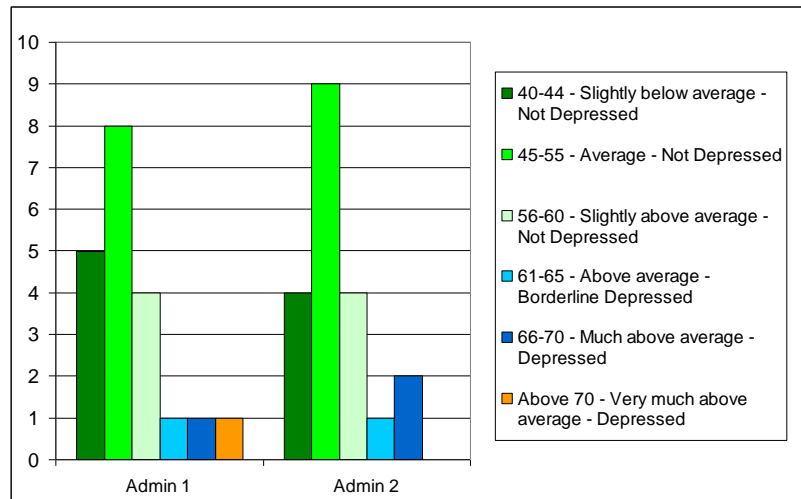


Figure 39: Children in depression categories of BC sample across both administrations

State Anxiety raw scores positively correlated with CDI-S scores ($r=.660$; $p<0.01$) and Depression Group ($r=.678$; $p<0.01$) in the first administration only. This effect was not seen in the third administration using the short form of the State Anxiety test.

8.3.4.3.1. Depression and Perceived Emotional Competence

A possible connection between Depression and children's scores for perceived emotional competence were examined. Table 48 overleaf shows correlational analysis between scores for emotional competence and the CDI-S and Depression categories. Looking at key competencies, correlations between depression and empathy and expression were generally poor, with no significant relationship apparent. A single significant negative correlation was seen between Intrapersonal Perception and Depression ($p<0.05$).

	Pearson	CDI-S	Depression Screen
APT-C T Scores	Correlation	-.351	-.237
	<i>Sig. (2-tailed)</i>	.129	.315
IECA T Scores	Correlation	-.100	-.022
	<i>Sig. (2-tailed)</i>	.674	.925
EEQ-C T Scores	Correlation	.144	.211
	<i>Sig. (2-tailed)</i>	.544	.372
IECA-R Affective Empathy	Correlation	.035	.147
	<i>Sig. (2-tailed)</i>	.885	.536
IECA-R Cognitive Empathy	Correlation	-.174	-.234
	<i>Sig. (2-tailed)</i>	.463	.320
EEQ – Intimate Expression	Correlation	.300	.344
	<i>Sig. (2-tailed)</i>	.199	.138
EEQ – Overt Expression	Correlation	.062	.102
	<i>Sig. (2-tailed)</i>	.796	.668
EEQ – Covert Expression	Correlation	.286	.325
	<i>Sig. (2-tailed)</i>	.221	.162
APT-C Interpersonal Perception	Correlation	-.215	-.133
	<i>Sig. (2-tailed)</i>	.363	.576
APT-C Intrapersonal Perception	Correlation	-.510	-.452
	<i>Sig. (2-tailed)</i>	.022	.045

Table 48: Correlations between depression and perceived emotional competence

8.3.4.3.2. Depression and Emotion Appraisal

The Picture Pack and the CDI-S were administered twice (first and third administration) in Study 4. No significant correlations were found between Depression and choice of depressive or confrontational affect in the Picture Pack appraisals in either the first or the third session. However, a depressive choice in appraisal of postures (sad, lonely) was negatively correlated with: 1) making a confrontational choice (angry, like fighting) of posture ($r = -.505$; $p < 0.01$) and 2) choosing a moderate to high negative valence (friendly, like playing) choice of postures ($r = -.599$; $p < 0.01$).

No significant correlation was found between consistency scores on MORPHO and Depression in this study.

8.3.4.4. Behavioural considerations

For 18 of the 20 children in this study, behavioural indications at the times of the administrations were obtained in the form of daily and weekly token counts for good behaviour. The number of tokens the children received on the day of the administration showed a significant positive correlation with the amount of tokens they received during the week of each administration ($r = .812$; $p < 0.01$). No significant correlation was found between behaviour in the

form of tokens received and T scores on any of the factors of emotional competence in the FQP. No significant correlation was found between behaviour over the time of the tests, as measured by tokens received, and the general choice of affect (depressive, confrontational, friendly) as measured in either administration of the PP. No correlation was found between weekly or daily token counts and either State or Trait Anxiety or Depression. Details of all correlation analyses between token counts and measures in Study 4 can be seen in Appendix 4.13.

CHAPTER 9: DISCUSSION

This thesis presented four studies; three to standardise new measures against a typical population (TD) and the fourth a comparative investigation involving children with severe behavioural problems (BC). This discussion will be based around the hypotheses presented in Chapter 1.4.1.1 and will compare TD patterns of scoring with those of BC children. Additional appraisal of BC children, in terms of anxiety and depression, will also be examined.

9.1. EMOTIONAL COMPETENCE

Profiles of typically developing children in Emotional Competence and Key Competencies were first established with mainstream schoolchildren in Study 1. These profiles were then compared to those of a smaller sample of severely behaviourally challenged children in Study 4. Findings in relation to hypotheses for TD children are addressed below.

9.1.2. Typically Developing Children

9.1.1.1. Correlation of Key Competencies and Sub-Factors

Some correlations were hypothesised between questionnaires on the basis of previous research. Theoretically, measures of different aspects of emotional competence in typically developing children should correlate to some extent as 1) emotional competence should be consistent across all factors in a typically developing child and 2) the three separate competencies represent aspects of a single ability, emotional competence. Scores for TD children on the APT-C overall were not related to the other two questionnaires; however connections were observed between factors of each competency. High Affective Perception (both intrapersonal and interpersonal) was associated with higher scores in Overt Expressivity (as was predicted) but not Cognitive or Affective Empathy, although a trend was observed with Cognitive Empathy. This effect was maintained independent of chronological age or gender, suggesting that if the child feels they are good at understanding emotion in themselves and others they will be likely to be more outwardly expressive of their emotions, but it may not make them more empathic. However, high Empathy (both Cognitive and Affective) was linked to high Intimate Expressivity; high Affective Empathy (but not Cognitive) also coincides with high Overt and low Covert Expressivity. Children most likely to hide their feelings from others were low in Empathy (Affective Empathy) and Expressivity.

It was hypothesised that high empathy and affective perception would be linked with high emotional expressivity on the basis that empathy is moderated by the awareness of emotion in others and the ability to express emotion appropriately (Findlay, Girardi & Coplan, 2006). This was true for Affective Empathy (but not Cognitive Empathy) where high scores coincided with high intimate and overt, and low covert, expressivity; confirming that children who are sensitive and compassionate with others are comfortable with their own expression of emotion. Conversely, such children are less likely to hide their emotions.

Significant age effects were also seen, independent of sex of the participant. Affective Perception (specifically Intrapersonal Perception) and Cognitive Empathy increased with age at time of testing, supporting Denham et al (2002) in a claim for a developmental trajectory to Empathy and self understanding. However, only Covert Expressivity increased with age, partially supporting Harris & Lipian (1989) and suggesting children may learn to mask some of their emotional expression as they mature, possibly with a growing understanding of display rules.

9.1.1.2. Key Competencies in Special Needs Groups

An unexpected sample of SEN and SEBD children in this study allowed comparison in this area. Some correlations were significant across typically developing, SEN and SEBD children, for example the internal consistency of the EEQ-C scale, with high Intimate Expression occurring alongside high scores for Overt and low scores for Covert Expressivity. Affective Empathy was linked to high Intimate Expression in all status groups, but linked to low scores in Covert Expression in the TD and SEN groups alone: in the SEBD group this was a positive relationship. In fact SEBD children showed a very different profile of associations between subfactors to the TD sample. No relationship between Cognitive Empathy and either Intimate Expression or Affective Perception indicates no relationship between a good knowledge and understanding of the principles of empathy and either perceptive abilities or ease with intimate feelings in this group. The general impression from this investigation is that the scoring of SEBD children on the questionnaire was not as cohesive as that of typically developing children; this may reflect a less integrated pattern of emotional competence. Age appeared not to exert an influence on any scores in the SEN or SEBD groups.

SEBD children scored significantly higher than SEN children on two items referring to the display of anger, independent of sex of the participant. Boys as group did not admit a greater ease with showing anger than girls; the effect was limited to SEBD boys alone, a perhaps surprisingly honest admission to being more volatile emotionally than some other children. No difference was seen between the typically developing and SEBD groups, despite the prediction

that this could be so, as emotion control has been previously found to be delayed in children with behavioural disorder (Taylor & Harris, 1984; Adlam-Hill & Harris, 1988).

9.1.1.3. Sex Differences in Key Competencies

No sex differences were found for Affective Perception. This was interesting, as Gilbert had found that women score higher (Gilbert 2001). Here, mean scores were almost identical. No sex differences were found for interpersonal or intrapersonal perception, indicating boys and girls think they are equally perceptive of affect in themselves and others; neither were there any significant differences across items on the scale. The high scores for the SEBD group, who might be expected to be less perceptive of emotion in others (from anecdotal report) and these results for sex may confirm that the APT-C works more as a self-report than a performance measure, especially as a number of studies have confirmed that girls are faster and more accurate at recognising emotional faces than boys (Camras, 1986).

The empathy scale confirmed previous research: girls were generally more empathic than boys (Bryant, 1982; Eisenberg & Mussen, 1978; Feshbach & Roe, 1968). Girls scored significantly higher both for Cognitive and (most notably) Affective Empathy (undifferentiated by Bryant, 1982), confirmation of a persistent superiority of girls over boys in measurable areas of empathy (Eisenberg & Mussen, 1978). Girls also rated themselves as significantly more affectively empathic than cognitively empathic, there was no difference in the way boys rated themselves. The lower scoring of boys in self-reported empathy has been interpreted as indicative of a deficiency in skills (Bryant, 1982). There is evidence however that boys are more reluctant to admit to feeling empathic towards others, linked to a male unwillingness to admit to emotional expressivity per se (Meerum Terwogt & Olthof, 1989). Here boys showed a reluctance to admit to any personal emotional impact of sad and frightening situations. When questioned many admitted this was because they didn't want to 'let it show'. This could indicate an influence of sex roles in display rules; certainly no sex differences have been reported in the understanding of such rules (Saarni, 1999; Meerum Terwogt & Olthof, 1989). Boys may be unfairly branded as less empathic as it is difficult from a self-report measure to judge how far responses would relate to actual behaviour in an empathy-eliciting situation.

A correspondence between sex of stimulus and sex of participant (in-group effects) in empathy, noted first by Feshbach and Roe (1968) and Bryant (1982), was partially confirmed. Girls claimed significantly more empathy in response to distress of girls than boys, but no such differentiation was found in male empathy.

As predicted (Fuchs & Thelen, 1988; Levenson, Carstensen, Friesen & Ekman, 1991) girls scored significantly higher for emotional expressivity overall than boys, although sex had not previously been found to discriminate scores in the adult EEQ (Kring et al., 1994). Sex differences in the expression of emotion were identified during standardisation of the adult ACT (Friedman et al., 1980) with females showing more expressivity than males in one sample; Friedman theorised that this may be because females prefer to ‘mask’ certain emotions. This conclusion is partially supported in child studies (Banerjee, 2000) in that boys do moderate emotional displays in order to gain approval of others at a younger age than girls. This effect could be a possible factor in why boys are reporting as less expressive. However, examining the factors of the scale (Kring et al, 1994, did not factorise the EEQ) boys are significantly less expressive than girls in Intimate but not Overt expressivity. Items on the ‘Intimate Emotion’ factor included: *“I tell people I love them”*, *“I touch friends while we are talking”*, *“I show someone I like them by hugging them”*, *“I cry at sad films”*, *“When I like someone they know it”*, and *“If I think really sad thoughts I end up crying”*. Lower scores in Expressivity may therefore reflect a tendency for boys to feel it is less appropriate to cry or express fondness; correspondingly boys scored significantly higher than girls for Covert Expressivity, indicating a reluctance to show emotion (especially intimate emotions, such as crying at sad films, crying with laughter and touching people). Such a response could be seen as predictable and reflective of sex differences in self-regulation of emotion (Meerum Terwogt & Olthof, 1989), with boys less expressive in some of the more traditionally female domains such as crying, hugging, saying sorry and expressing love, rather than laughter and excitement. Indeed, boys rated themselves as more significantly more overt than intimate in expressivity, and more covert than overt, indicating a reluctance to be seen as emotional. In comparison girls rated themselves as more intimately expressive than overt and more overt than covert, a complete pattern reversal. Girls have been rated more verbally and facially expressive and happier at expressing fear and hurt, warmth, guilt, shame and embarrassment, whereas boys are more expressive through actions and show more verbal expression of anger and pride (Ablon, Brown, Khantzian & Mack, 1993). The sex difference in cognitive and affective empathy, replicated in this study, may also have roots in earlier verbal and moral development of females and does not necessarily reflect an ongoing disparity between the sexes. In a Japanese study of adolescent males and females (Tobari, 2003), empathic concern and cognitive empathy in males was found to increase developmentally until college level. In contrast, female empathy scores were more stable. Females showed higher cognitive and affective empathy than males in middle school but by senior school sex differences were no longer significant, suggesting a definite maturational pattern, particularly in males. The results of this current study show both cognitive and affective empathy higher in females throughout middle childhood years.

The issue of gender stereotypes in the self-assessment of aspects of emotional competence also should not be ignored. An adult study (Petrides, Furnham & Martin, 2004) found both male and female participants rated their fathers as higher in traditional intelligence as and lower in emotional competence than their mothers. Males also rated themselves as lower in emotional competence than did females. This suggests any self-report measure of emotional competence is likely to find gender differences. This may be to some extent because measures generally contain aspects where women regularly outperform men (for example empathy, relationship skills) which are traditionally associated with nurturance. In the same study the only component of emotional competence where women gave higher estimates than men was emotional awareness (Petrides et al., 2004), which corresponded to some aspects of interpersonal and intrapersonal competence.

However, no sex differences were found for perception of affect; scores were almost identical, not just non-significant. This is interesting, as the admission of a sex difference in emotional ability has been at times controversial. There is evidence that females are more emotionally perceptive in that they are more adept at recognising facial emotion than men (Ciarrochi, Hynes & Crittenden, 2005). Most research on emotional perception has been limited to recognition of emotion from static pictorial stimuli; females from early childhood cross-culturally are generally reckoned to perceive facial expressions of emotion more accurately than males. Females rate dynamic presentations of anger and happiness as more intense than static pictures, whereas males rate only dynamic angry presentations as more intense (Biele & Grabowska, 2005). As interesting as this is, in that it supports basic differences in the way males and females view emotive faces, these are performance based measures and the APT-C, as used in the questionnaire pack, was a self-report measure. Although Gilbert (2001) found a correlation between self-report of perception and a performance based emotion recognition task it cannot be assumed without further research that the APT-C does the same. This may go some way to explaining why sex differences were not found in perception scores; boys may indeed think they are just as perceptive interpersonally and intrapersonally as girls.

9.1.1.4. Age Differences in Key Competencies

Some age-related difference was found for empathy; children in years three and four scored significantly lower for cognitive empathy than children in years five and six. The concept that empathy is related to moral and cognitive maturation in childhood is not new (Feshbach & Feshbach, 1969). High empathy in pre-school children has been linked to a sophisticated understanding of aggression and shyness compared to less empathic peers, suggesting a maturational aspect (Findlay et al., 2006). Altruism in childhood was judged as related to

developmental aspects of moral reasoning, empathy and perceptual and social perspective taking (Underwood & Moore, 1982) in a meta-analysis of over 30 studies targeting children aged three to 11 years. Typically developing younger children (seven and eight year olds) are also scoring lower for Affective Perception (both Interpersonal and Intrapersonal) than older children, suggesting that understanding of emotion in self and others does show a maturational progression; as this was a self-report measure, this also reflects a growing confidence in middle childhood in the ability to understand and distinguish emotions.

9.1.1.5. Emotional Competence in TD Children

From the new 48-item index of Emotional Competence three groups were generated: those scoring high, medium and low for overall EC. It was hypothesised that scores in EC would be positively related to age, irrespective of sex of the participant or ethnicity, as a developmental aspect to dealing with emotional information has been observed (Strongman, 1996; Izard, 2001). This was partially confirmed: boys who achieved low EC scores were likely to come from younger classes at school than those who achieved medium or high EC, irrespective of ethnicity; however no link with age was found with girls.

9.1.2. Theoretical Model of Emotional Competence

Seven affective skills and differences were identified through factorisation of the 48-item Emotional Competence scale. These were factors of Emotional Intensity, Empathic Sensitivity, Perceptual Skills, Emotional Reactivity, Empathic Attitudes, Social Confidence and Emotional Confidence. Primary and secondary links between these and key competencies, confirmed by SEM, are presented below.

9.1.2.1. Interpreting the Affective Skills and Differences with SEM

As some of the reliabilities between items on the questionnaire and the factors were unacceptably low (Cronbach's alpha of less than .5), SEM was used to aid interpretation of the affective skills by testing the strength of the relationship between items on each proposed factor and interrelationships between these items which contribute to the association of items to the factor. The strength of regression weights in a SEM model reflect how much each item contributes to the strength of the factor and aid in the interpretation. They are presented separately below.

The first factor, Emotional Intensity, was associated with items from the Empathy and Expressivity questionnaires. The strongest loading items (with regression weights of over .50) on the factor were concerned with crying. Most intercorrelations were easily interpretable and illustrated the coherence of the scale: the strongest positive intercorrelations were between items regarding crying over TV media, between hugging and telling people they are loved, feeling like crying with sad music and seeing a crying girl. Amongst negative intercorrelations were: loud laughter/feeling like crying at seeing a boy crying; crying at sad films/telling people they are loved, which is difficult to interpret. The primary indication that a child has a strong intensity of emotion may be in their susceptibility to sadness both internally and externally generated.

The strongest regression weights for Empathic Sensitivity (over .50) were for five items indicating sensitivity to the plight of other children and to sad music. The strongest positive intercorrelations were concerning the effect of boys and girls who are crying and boys being hurt or lonely. Negative intercorrelations were also seen between: girls crying or lonely/boys being hurt, which may be related to the sex of participant/sex of stimulus interaction indicating girls are more empathic to other girls rather than boys. A child who is sensitive to the distress of others is likely to be generally emotionally sensitive, including to emotive media.

The strongest three regression weights for Perceptual Skills (of .40 or over) were concerning knowing whether others were angry or cross by vocal tone or facial expression, and whether other children were unfriendly or shy. Interestingly a negative intercorrelation was seen between recognising vocal anger and knowing if other children want to play. This offers no immediate interpretation; the positive intercorrelation between understanding of one's own feelings and knowing whether children were unfriendly or shy may be easier to interpret, in that the recognition of subtle differentiation between secondary emotions would most likely be linked to a heightened awareness of affect than recognising primary emotions such as anger.

The strongest regression weights (of over .30) for the third factor, Emotional Reactivity were for six items almost exclusively concerning the laughter and cheering. All but three items were covering this area; the only intercorrelation in the model was between items concerned with being excited at receiving a gift and friends being aware of anger. A readiness to laughter can be seen as the strongest indication of the emotionally reactive child.

The fifth factor of Empathic Attitudes was interesting in that items were indicative of non-empathic attitudes rather than empathic, apart from the item with the strongest regression weight (over .60) which showed a negative correlation and was concerned with touching friends whilst talking. The other strongly predictive item (over .50) was concerning showing anger to friends.

The only intercorrelation on this factor was between items regarding both boys and girls being silly to cry when happy. This suggests that the reluctance to engage in bodily contact with friends and comfortableness with displaying anger is likely to be a good indicator of a child who does not have a very empathic attitude to others.

The sixth factor, Social Confidence, had only four items, three of which had regression weights of over .40. The strongest regression weight (.75) was for concerning the child knowing if others wanted to play with them. The other two items of over .30 concerned understanding the emotional content of music and being sure that other children thought they were fun to be with. There were no intercorrelations in this model. As peer relationships are of major importance in middle childhood, being sure that they know when others like them is likely to be a good indication of general social confidence in a child.

The final seventh factor, Emotional Confidence, contained seven items only two of which had regression weights of over .40. The scale was represented by negatively loading items concerning difficulties in understanding emotion in others and knowing what to do in emotive situations. The two strongest loading items concerned not understand why people get upset or when they are going to cry. This was a very cohesive scale in terms of interpretation, although it achieved the lowest Cronbach's alpha of just .46. One intercorrelation was found: not knowing when someone is going to cry/ trying to hide anger if someone makes them upset. One negative correlation was observed: knowing when a child is unfriendly or shy. Children who score low in Emotional Confidence are likely to have a poor understanding of affect generally and be unsure how to deal with difficult emotions. The strongest indicator of this may be the inability to understand when others are upset.

9.1.2.2. Links between Affective Skills and Key Competencies

Most affective skills were positively linked with key competencies; however there were a few exceptions. Affective Perception was high in children scoring high in Perceptual Skills (as would be expected) but also Social Confidence, Empathic Sensitivity and Emotional Confidence, indicating a sensitive and confident child with a heightened awareness of affect. However, it was also linked to low scores in Emotional Intensity; perhaps suggesting that overwhelming emotional experience can be counterproductive to understanding and accurately interpreting emotional signals in oneself and the other. High Empathy emerged as a product of good Empathic Sensitivity (an expected connection between being sensitive to affect in others and the expression of empathy) and to Empathic Attitudes (a parallel to cognitive empathy), but also as a product of strong Emotional Intensity (the more acute the experience of emotion, the

stronger the empathic response) and Emotional Confidence, suggesting a child who is confident in their own emotionality is more likely to show empathy towards others. High Empathy was also linked with low Emotional Reactivity; suggesting that a child who is overly reactive to emotional stimuli may not be best placed to give an appropriate empathic response to others.

The pattern for Expressivity showed only positive relationships with affective skills and differences. The highly expressive child has strong Social and Emotional Confidence, high Emotional Reactivity and is likely to score highly for Emotion Intensity; the reactive child who is able to experience strong emotions and is confident in their own emotionality is likely to be highly expressive in both intimate relationships and gregarious displays.

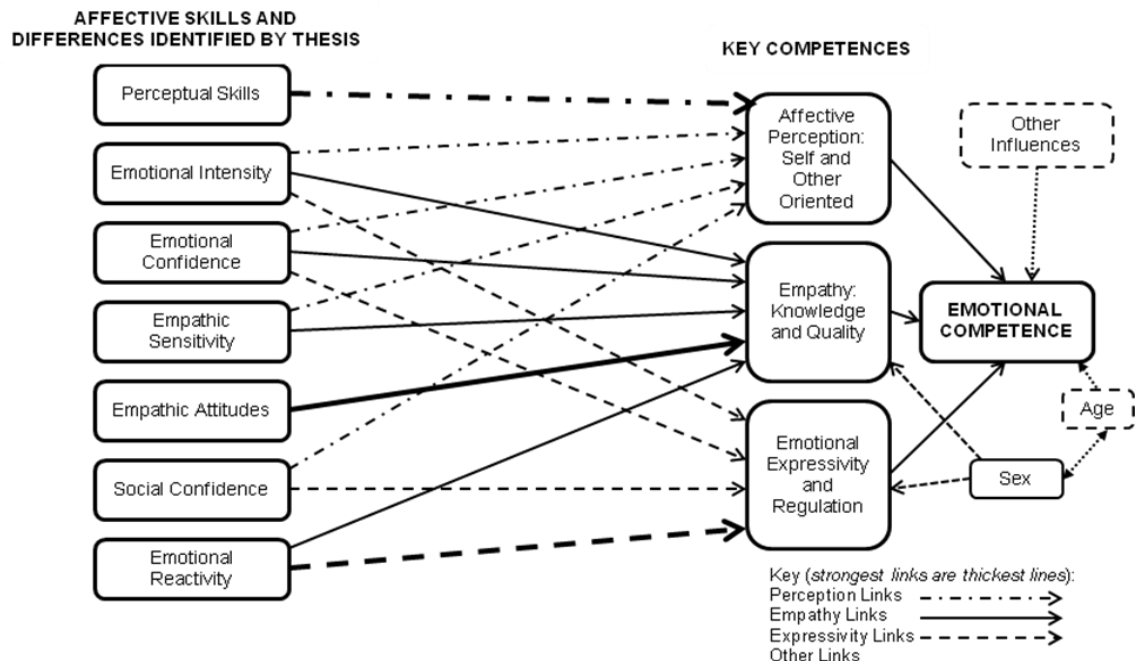


Figure 40: Theoretical Model showing links determined by this thesis

Figure 40 above presents the theoretical model of emotional competence in TD children with a series of connections found through analysis to occur between affective skills and differences and key competencies. Primary associations between the two are marked in the heaviest lines; other significant links are also shown. Detailed exploration of sub-factors of the key competencies and the effects of age and sex upon scores revealed that both Empathy and Emotional Expressivity are affected by sex differences, and that emotional competence is linked to age at time of testing, but is moderated by sex as the effect occurs with boys only. Age effects were not found for all key competencies. These links and the influence of other aspects on emotional competence now need to be examined.

9.1.3. Behaviourally Challenged Children

Several hypotheses were proposed regarding the performance of BC children in comparison to TD peers concerning emotional competence and key competencies and possible relationship of these scores to depression, anxiety or moderators such as chronological age or reading ability.

9.1.3.1. Correlation of Key Competencies and Sub-Factors

The pattern of associations for BC between questionnaires and their sub-factors was closer to that of the TD sample than either SEN or SEBD children. However, like other special needs groups, the lack of an association between scores for Cognitive Empathy and either Intimate Expression or Affective Perception suggests no relationship between a good knowledge and understanding of the principles of empathy and either perceptive abilities or ease with intimate feelings in this group. Age appeared not to exert an influence on any scores in BC children, who claim to exhibit an unlikely pattern of high Intimate and Overt Expressivity along with high Covert Expressivity; a contradictory pattern of associations and in direct contrast to all other children using these measures. High Covert Expressivity was also associated with high Affective Empathy; again a reversal of the pattern in TD children. This may be linked to self-esteem issues (Leary et al., 1995). Aggressive children who overestimate their social competence may overestimate their abilities in whole range of emotional and behavioural domains (Patterson, Kupersmidt & Griesler, 1990; Pardini et al., 2006). Such children may require extra intervention to help them understand how their behaviour affects others, particularly if they exhibit either an impaired ability to be empathic or a reluctance to show empathy.

9.1.3.2. Key Competencies in Behaviourally Challenged Children

A number of hypotheses were made concerning the performance of BC children in key competencies as compared to TD children. It was predicted that BC children would score lower for empathy but this was not found to be the case. In fact there were no significant differences in total scores in either Affective Perception, Empathy or Expressivity between BC children and their typically developing peers. An interaction effect between age and Status, with BC children in year three scoring higher than TD peers, but lower in year four. Examination of sub-factors found this to be exclusive to Interpersonal Perception. However, despite a small to moderate effect size, only two BC children in year three makes this non-interpretable.

Investigation of other sub-factors found BC children scoring no differently from TD for either Affective or Cognitive Empathy, failing to support previous studies by Hastings et al (2000) or de Wied et al (2005) in finding that children with behavioural problems have deficits in situational and dispositional empathy. However, this lends some support to Sutton et al (Sutton, 2001; Sutton et al., 1999) in finding at least equal, if not superior, empathy skills in children who show disruptive and bullying behaviour; reflecting the fact that empathic awareness and social skills do not necessary lead to empathic behaviour. No differences were found in scores for Affective Perception or sub-factors between BC and TD children. This is interesting as it would appear to some extent to challenge other research showing that behavioural difficulties are linked to low self-esteem (Leary et al., 1995); children with behavioural difficulties in both studies did not rate themselves as less able in their abilities to understand themselves and others.

The prediction that BC children would score higher than TD in the expression of gregarious emotion was supported, although the profile was to some extent contradictory. BC children reported significantly more Intimate and Overt expressivity, in combination with a stronger tendency to hide emotion from others. This supported work of Taylor & Harris (1984) and Adlam-Hill & Harris (1988) that children with behavioural problems show higher levels of gregarious emotion than their peers as they have difficulty moderating their emotional impulses and show less restraint in emotional affairs. Difficulties in showing emotional restraint have been linked to delays in the development of emotion control in children with behavioural disorders (Taylor & Harris, 1984; Adlam-Hill & Harris, 1988). This would include difficulties in constraint of anger. However, the higher scoring of BC children on the Covert Expressivity scale (in combination with high Intimate and Overt Expressivity) is a direct contradiction, especially as the scale contains negatively worded items which equate directly to positive items on the other two, for example “*I (don’t) touch friends when we are talking*”, *(don’t) cry at sad films*, *(don’t) laugh so loud that my eyes water*, and *try to hide anger*. In all other groups high scores in Intimate and Overt Expressivity were co-occurred with low scores in Covert Expressivity. That Covert Expressivity correlated positively with Affective Empathy in BC children does not offer any coherent explanation, other than children with severe behavioural problems have an unrealistic view of their own abilities in these areas. In fact, comparing BC boys alone to TD boys, they did indeed report significantly higher levels of all three areas of Expressivity, including the full scale score when low-reliability items were removed from the analysis. Higher scores in all these areas of expressivity than TD children may reflect a tendency to preserve self-esteem, as suggested by Lochman and Dodge (1994) who observed that adolescent boys with aggressive problems (in comparison to non-aggressive peers)

displayed a tendency to indicate they would feel ‘happy’ in a emotive situation where fear or upset would have been more appropriate (Lochman & Dodge, 1994).

9.1.3.2. Predictive Value of Affective Skills and Differences

Unlike their TD peers, very few Affective Skills and differences were related to scores on the three questionnaires. For Affective Perception, Empathy and Expressivity, items not part of the 48-item EC scale were the strongest predictors; in the case of Empathy the only predictor. Perceptual Skills and Emotional Confidence were related to Affective Perception, along with five items representing some other aspect of competency and relating to the awareness of lying, the ability to play act, recognising genuine anger and awareness of internal distress, suggesting the BC child excels in these particular areas. For Empathy, only five negative items which did not load on EC were predictive of scores; items such as *“kids who have no friends probably don’t want any”* and *“I don’t get upset when I see a classmate being punished by a teacher”*. Two Affective Skills alone, Emotional Intensity and Reactivity, along with the two non-loading items (*“people can tell from my face what I’m feeling”* and *“if someone shows me up I get angry and shout”*), were predictive of Expressivity scores.

9.1.3.3. Emotional Competence in Behaviourally Challenged Children

It was hypothesised that scores in EC may be enhanced in BC children where a higher reading age was evident. This was not the case. In the sample of 20 severely behaviourally challenged children there was no relationship between reading age and EC, despite the fact that reading ages of some of the children were very much below expected levels for their chronological age. There was no relationship between EC scores and chronological age and unlike in the TD sample, affiliation to high, medium and low EC group did not predict a child’s year at school. This would support Gil-Orte Marquez et al (2006) in the proposition that EC is not linked to academic literacy. However, such links have been found in some previous studies (Barchard, 2003) although this was linked to performance, not self-report measures, in adults. A combination of a measure of verbal ability with EC at the time of testing would have been more conclusive than relying on statutory tests which may, in some cases, have been administered months before this study took place and not give an accurate picture of the child’s current skills. This was not possible in the current study but would be recommended.

9.1.2.3.1. Depression and Emotional Competence

According to the Kovak depression screen 35% of children were designated depressed for both administrations. This meant seven out of 20 children were borderline depressed or over in each

administration. One child previously categorised as ‘very depressed’ had moved to the ‘depressed’ category for the second administration. According to the UK office of National Statistics, the prevalence of depression in the population of five to 11 year olds in 1999 was less than 1%, which makes this sample very atypical (Maughan, Brock & Ladvá, 2004). Some authors propose the general prevalence in prepubescent children in USA and Europe to be between 1% and 2% (Weiner, 1996). This would make the results for this sample seem very high. However, co-morbidity of depression with conduct disorder is well documented: studies of clinical samples have identified that 36% to 80% of depressed juveniles meet the criteria for conduct disorder (Weiner, 1996), so some co-morbidity in this sample, albeit small, was expected. The finding of 35% for depression in this study is well within the anticipated range and suggests a degree of mood disorder typical of prepubescent children with severe behavioural problems.

Depression has previously been linked to poor self-worth and perceived performance (Roberts et al 1996) and negative self-evaluation (Naveh-Benjamin et al, 1981) and it would have been expected for this to effect self-appraisal in a self-report of this kind; however this was not the case and it may be that a tendency for children with behavioural problems to consider themselves highly competent socially (Pardini et al, 2006) may have had a moderating effect. No correlation was found between most of the sub-factors of key competencies and depression. The exception was intrapersonal perception, the understanding of self-emotion and affect, where higher scores were related to higher scores for depression, suggesting that a tendency towards depression may lead a child to think they are less able to understand and cope with their own feelings. This would concur with previous research into the effect of depression on well-being and self-confidence (Roberts et al., 1996). However, it must be cautioned that this was not an investigation using a clinically depressed sample, and any conclusions as regards depression and self-report measures of emotional competence would require further investigation with vulnerable and depressed samples.

9.1.2.3.2. Anxiety and Emotional Competence

Two measures of anxiety were taken during Study 4: state (situational, performance) anxiety and trait (dispositional) anxiety. State anxiety may affect test performance (Naveh-Benjamin et al., 1981), particularly where self-evaluation is required, and to facilitate the identification of angry faces (Hadwin et al., 2003). Of the 20 children, 80% scored below the clinical cut-off for state anxiety in the first administration and this increased to 95% in the second and 100% in the third. No relationship was found in this study between high EC or key competency scores and state anxiety as had been hypothesised. This indicates that state anxiety was not a determining factor in children’s responses to the measures. State anxiety also reduced significantly between

first and second sessions, which might have been expected as children became familiar with the author.

A significant correlation between depression and state anxiety appeared in the first session, suggesting the greater the child's depressive tendencies the greater the likelihood they will be anxious in a performance environment. However, it has to be cautioned that most children were not depressed, so any conclusions regarding depression and performance on the three measures is to some extent speculative without further research.

However, 70% of children (14 in total) were scored above the mean for trait anxiety, suggesting a higher level of trait anxiety than would normally be expected in children of this age. Trait anxiety positively correlated with State anxiety in session two when both were conducted. A relationship was found between Expressivity and trait anxiety, suggesting that the degree of dispositional anxiety may be related to the readiness to express emotions. This was examined further in correlating the sub-factors of questionnaires with anxiety scales. BC Children exhibiting higher trait anxiety are claiming to be more overtly expressive and gregarious of emotion, suggesting the greater the dispositional or temperamental anxiety of the child, the higher they would rate themselves for laughing out loud, cheering (and so forth); a general tendency towards gregarious expression of emotion. This could be connected to a desire not to appear vulnerable (Pardini et al, 2006) although no negative correlation was found for intimate emotion, which might have been expected if this was the case.

High state anxiety was also related to poor intrapersonal perception; the higher the child scored for anxiety, the less they rate themselves in good self-understanding and awareness. It could be that the awareness of anxiety is linked to a feeling that the child is 'out of control' of their own feelings, or is not comfortable with interpreting them. It may of course be the case that the child with a poor understanding of the self will feel more anxious in performance related situations. Further development of the Affective Perception questionnaire (especially an enhancement of the intrapersonal perception scale, will assist in confirming this effect.

In general, responses of BC children to the Questionnaire Pack do not concur with a picture of the aggressive child uncomfortable with admitting empathy or emotional expressivity but declaring confidence in their own social abilities; a pattern which concurs with that of other researchers (Coie, Lochman, Terry & Hyman, 1992; Miller-Johnson, Coie, Maumary-Gremaud, Lochman & Terry, 1999). Such children may have a dysfunctional sense of their own social abilities (Parker & Asher, 1987; Pardini et al., 2006) overestimating their social competence

(Patterson et al., 1990). This may explain to some extent why BC children in this study thought they were equally as perceptive and empathic, and more expressive than, their typically developing peers.

9.2. EMOTIONAL APPRAISAL

Two measures of emotional appraisal were administered: full body presentations and facial expressions. Outcomes in terms of hypotheses relating to both TD and BC children are presented below.

9.2.1. Appraisal of Affect in Postures in TD Children

The design of this study, using ambiguous postures with ambiguous faces, was designed to elicit unconscious patterns of response to the viewing of another child, based upon the participant's own internal patterns and appraisal bias.

9.2.1.1. Affect Appraisal Moderated by Posture, regardless of sex or ethnicity

As no previous studies could be found that had used similar methodology, the only experimental hypotheses for this sample were that certain postures would be appraised more negatively than others. This proved to be the case: the arms akimbo posture 'Hands on Hips' was rated as significantly more confrontational than any other posture (Pease & Pease, 2003; Mehrabian, 1969). The 'Arms Folded' posture also drew significantly higher rating of depressive or negative affect as suggested by Mehrabian (1968) than the two relaxed and innocuous postures.

Evidence that the bland and repeated faces succeeded in being ambiguous came from the wide variety of emotions associated with different postures. For the 'Hands in Pockets' posture over 50% of children rated the black girl as 'lonely'. This is unlikely to be due to the representation of the face (which is the same in each posture) as different profiles were seen for each of the postures, showing the children were using more than facial information to make a judgement, albeit a preconscious one.

9.2.1.2. Intentionality Aspects of Postures

Of the 243 TD children, 201 chose an intentional affect appraisal at least once during the test. The friendly interpretation 'Like Playing' was chosen significantly more frequently than the confrontational interpretation 'Like Fighting'. There were strong age effects for the use of intentional affect in appraising the different body postures, with older children more likely to attribute intentionality than younger peers. This was particularly noticeable in the case of non-

white participants. Older females were choosing the most intentional appraisals in the typical sample.

A high consistency in the rating of individual postures was found. As predicted the 'arms akimbo' posture of 'Hands on Hips' posture attracted high levels of intentionality (Givens, 2007); 90% saw the posture as intentional at least once. Of these, 64% of participants chose confrontational intentionality at least once for this posture. A further 26% rated it as intentionally friendly, leaving only 10% of children who did not see it as intentional. This confirms the stance as a stereotypically intentional posture, more often than not seen as confrontational. Very few children saw the other three postures as intentionally confrontational: 'Arms Folded' attracted significantly fewer appraisals of intentionality with less than 2% of appraisals for friendly intentionality. The postures 'Hands Folded' and 'Hands in Pockets' were both rated as significantly less negative than the other two, with friendly intentionality of 22% (Hands in Pockets) and 31% (Hands Folded).

9.2.1.3. Effect of Sex and Ethnicity on Appraisal of Postures

No predictions were made for the effect of sex and ethnicity on the appraisal of postures as no comparative study has been done. Examination of interactions between sex and ethnicity of stimulus and participant factors resulted in an overall effect for ethnicity of stimulus: Black postures were almost always rated as more negative in affect than White postures. The one exception was the 'Hands on Hips' posture, where Boy White was rated as more negative in affect than all other sex/ethnic presentations. Boys were also rated as more negative in affect overall than girls.

The ethnicity of the stimulus had a strong effect on the choice of intentional appraisals. Overall White postures were more likely to receive 'intentionality' appraisals than were Black postures. This was true for the sample as a whole and for both sexes and ethnic groups of participants. Black postures were however rated significantly more negatively intentional than White postures by both white and non-white groups. Male presentations were also rated more negatively intentional than female, by both boys and girls, white and non-white groups. Of particular interest was an interaction between the ethnicity of the stimulus and the ethnicity of participants, with non-white children choosing significantly more confrontational intentional affect ('Like Fighting') for white postures than did white children.

9.2.1.4. Other Issues: Confidence in Choice

As regards certainty of choice, most children chose ‘Quite’ sure or ‘Very’ sure, although approximately 20% were also not sure about their choice. Figures for males and females were almost identical. Significantly less children thought they were ‘not sure’ than were ‘quite sure’. This is reassuring as doubt in choice would make the results of this investigation less reliable.

In conclusion, it would seem that each body posture has a fairly consistent range of emotion appraisals in a TD population, which vary between ethnic group and sex, and that on the whole children are fairly confident about making these appraisals. At times the profile is more consistent for ethnic group than for sex. From the results of this normative sample, it would be expected that most similar TD children would score in a similar way. Extreme scores or scores which show a similar scoring pattern across all sexes and postures are likely to indicate an unusual emotional profile. As so little comparison can be made to previous research it is envisaged that further use of the Picture Pack posture appraisals with other populations, including vulnerable children, will start to establish differences in patterns of emotional assessment of others.

9.2.2. Appraisal of Affect in Postures in BC Children

It was hypothesised that differences in internal schemas and a possible negativity or confrontational bias would be demonstrated in that BC children would view some postures as more intentionally confrontational and more confrontational overall than typical peers. It was hypothesised that the appraisal of postures as confrontational (grump, angry or like fighting) would be extended to the two innocuous postures: ‘hands folded’ and ‘hands in pockets’. A significant difference in this area would demonstrate a bias towards negative and confrontational appraisal in children with severe behavioural problems.

9.2.2.1. Affect Appraisal Moderated by Posture, regardless of sex or ethnicity

In comparison with typically developing peers, it was anticipated that behaviourally challenged children would show a hostility bias (Dodge & Somberg, 1987) in making more confrontational and negative appraisals than their peers. This was confirmed as BC children chose the confrontational appraisal ‘Like Fighting’ significantly more than their TD counterparts. However this did not extend to general confrontational affect (grumpy, angry, like fighting); the difference was in ‘Like Fighting’ category alone. Whereas TD children rated the stereotypically

contentious ‘Hands on Hips’ as more negative in affect than any other, this was not the case with BC children, where ‘Arms Folded’ (rated by TD children as primarily depressive) was considered equally negative, with both depressive and confrontational affect being preferred. The benign ‘Hands in Pockets’ posture was also seen as significantly more negative in presentation than ‘Hands Folded’, which was not the case in the TD sample. BC children are choosing the highly confrontational appraisal of ‘like fighting; significantly more than TD children, suggesting a bias towards confrontational appraisal on behalf of the BC children and supporting previous observation of a hostility bias in response to peer provocation in children with behavioural problems (Crick et al., 2002). Interestingly, in the BC sample alone, occurrences of depressive affect (sad, lonely) were negatively correlated with moderately confrontational affect (choosing grumpy, angry and like fighting) both in administrations, suggesting that children who were making negative appraisals were either choosing depressive affect or confrontational affect, but not both. This suggests that in this sample alone, a consistent bias towards either depressive or confrontation appraisal can be seen.

A hostile attribution bias in BC children, supported by these results, would include problems in processing perceived peer provocations (Dodge et al., 2002), although Dodge found no support for a purely hostile attribution bias, rather a general dysfunction in processing information about others. It may also be that a hostile attribution bias, where it occurs, is not one of conscious appraisal, but an involuntary response judgement from a non-cognitive emotion-activating system, as proposed by Izard (1993). This supports the premise that children assessed to have chronic behavioural problems have a tendency to make an uninformed, spontaneous responses to emotive signals of the other without cognitively reassessing the situation: classically signal-response behaviour (Shiffrin & Scheider, 1977) which is difficult to suppress. That the postures had bland, identical faces offering no immediate visual clue as to emotional state serves to strengthen this conclusion.

9.2.2.2. Intentionality Aspects of Postures

It was hypothesised that BC children would attribute an action tendency (intentionality on the part of the stimulus) more frequently and to more postures than would their TD peers, in line with previous studies. This was confirmed: all postures were seen by BC children as significantly more intentional than by TD peers, including the both inoffensive postures ‘Hands Folded’ and ‘Hands in Pockets’. ‘Arms Folded’ was rated as more intentional by BC children but attracted a higher rating of friendly intentionality than confrontational, in line with TD and SEN children. BC children actually saw ‘Arms Folded’ as significantly more intentionally friendly than TD children. This supports evidence that children with severe behavioural

problems are seeing others as more intentional and confrontational than their counterparts (de Castro et al, 2005).

9.2.2.3. Effect of Sex and Ethnicity on Appraisal of Postures

Interaction between sex of stimulus and sex of participant could not be observed with the BC sample as they were almost exclusively male. However, similar responses to sex and ethnic variations in stimulus were seen with BC children as with TD. A high consistency between the two administrations of the Picture Pack, especially as these occurred at least one month apart, suggests responses by this group were not simply random. As with TD children, Black presentations were rated overall as more negative in affect than White presentations. In the TD sample Boy Black was rated significantly more negatively than all other sex/ethnic types. With the BC children, there was no significant difference in how black Boy or Girl postures were rated; overall both sexes of black postures are rated as more negative than white counterparts.

As with TD children, Boy Black was rated the most negative overall, but this effect did not extend to Girl Black. This was in contrast to the TD group, who appraised the Boy postures as significantly more 'negative' in affect than the Girl postures. Boy White was rated the least negatively of all the sex and ethnic options.

9.2.2.4. Other Issues in BC Children

9.2.2.4.1. Confidence in Choice

It had been expected that BC children would show equal confidence in their choice, as did TD peers, as they did not score lower for any area of emotional competence. This was not so. BC children were in fact significantly less confident in their appraisal than both TD and SEN children. Most children in the BC sample were actually 'not sure' that they were making the right choice (49% in the first and 60% in the second administration: see Appendix 4.11). Only 11% overall were very confident of their choice. This was a direct opposite of the pattern exhibited by SEN and TD children and applied to the assessment of both male and female postures. This would suggest that children with behavioural problems do not have a great deal of confidence in their ability to make judgements of this kind; whether this is related to self esteem (Leary et al., 1995) is open to question.

In summary, BC children are presenting a negative bias in their appraisal of the affect of others compared to TD peers. This is not unknown; in a study of 20 aggressive and 18 non-aggressive

boys of primary age (Lochman, 1987) an aggressive appraisal bias was noted in interpersonal dyadic interaction, where aggressive boys undervalued their own aggressiveness and showed an increased expectation of aggressiveness in the other. This effect was shown only when aggressive boys were rating non-aggressive peers, suggesting a perceptual bias where no confrontational affect was present. This supported earlier research using similar aged boys and sample sizes, where boys with behavioural problems displayed dysfunctional attributional processes about perceived aggression when viewing non-aggressive peers (Lochman, 1987). This would support the premise that children with severe behavioural disorders have deficits in social information processing (Crick & Dodge, 1994) and exhibit a hostile bias in interpreting emotional information (Poulin & Boivin, 2000; Nasby et al., 1980; Schultz et al., 2000). The use of body postures with neutral, consistent facial affect in this study indicates that this bias is operational regardless of facial expression.

9.2.2.4.2. Depression and Anxiety and Appraisal of Postures

Scores for depression in BC children were not related to a choice of depressive affect in responding to body postures. No correlation was found between depression status and choice of depressive or confrontational affect in the appraisal emotion of body postures, suggesting that in this sample anyway depression was not related to sustained attention toward negative emotional information (Ladouceur et al., 2005).

There was no relationship between trait or state anxiety in BC children and choices of either depressive or confrontational affect on the Picture Pack, suggesting that anxiety did not play a part in whether children tended towards using depressive or confrontational affect in the assessment of others. It must be cautioned that children in this study were not clinically depressed or suffering from clinical anxiety.

9.3. APPRAISAL OF EMOTIONAL FACES AND REASONS FOR EMOTIONAL CHANGE

9.3.1. Appraisal of Facial Emotion in TD Children

9.2.3.1. Appropriateness of Choice of Emotion

It had been hypothesised that most children in the primary age range would construe an appropriate or accurate emotion for each facial stimulus presented, regardless of the sex of the stimulus, as the ability to correctly identify facial emotion increases throughout middle childhood (DeSonneville et al., 2002) to stabilise around puberty (Denham, 1998). This was confirmed: no differences were found generally for sex or age in the ability to choose an appropriate emotion for a facial expression. The majority of children gave the target emotion for each of the four emotional faces. There were no effects for age or year at school. It would certainly appear that there is something of a ceiling effect with correctly attributing emotions to facial expression. This would, however, be expected within a normal sample, as by the age of seven most children will be very adept at recognising emotional expressions. Three of the faces attracted similarly high mean scores for correct emotional assessment; one face (Girl-Angry) a little lower, reflecting the fact that a number of children chose a similarly valenced emotion but not the target emotion. This face had the greatest degree of variability in the adult standardisation sample as well

Bearing this in mind, the ethnicity of stimulus/ethnicity of participant interaction found in this study is intriguing. Non-white children scored significantly higher for facial emotion identification than white children; but only for the non-white presentation of Boy faces. Both Boy faces showed this pattern, suggesting this may have been due to the difference in sex (in assessing boy versus girl faces) or in assessing ethnic faces, as both boy pictures were non-white. As there were no sex differences in this appraisal this suggests that non-white children were better at judging facial emotion in non-white children than were white children. If this is so, there is certainly room here for further research. Cross cultural studies have frequently confirmed the universality of recognition of facial emotion (Ekman, 1999), but this universality has not always seen unanimous agreement between cultures in the rating of individual facial emotions. In a comparative study using Japanese and American participants, recognition rates varied between 64% and 99% across a range of emotions (Matsumoto, 2001). No difference in

accuracy rates for happiness and sadness was found but Americans were better at identifying anger, fear, sadness and disgust. Matsumoto (2001) suggests that variations in ability to discriminate emotion in other cultures has little to do with the innate biological nature of emotion recognition but everything to do with the modification and adaptation of peoples to the display rules and emotion management prevalent in their own cultural structure. This would suggest that people of one cultural background would be more discriminating in their recognition of emotional displays in others from the same cultural background as opposed to those of other cultures and accordingly would achieve superior recognition rates.

This result could be an indication of the advantage of familiarity in terms of racial appearance. In a meta-analysis of emotion recognition (Elfenbein & Ambady, 2002) an 'in-group' advantage was apparent in that emotion, in the form of photographic representations of faces, was more accurately recognized and understood by members of the same ethnic group. This advantage was reduced if an ethnic minority group had been assimilated into the culture of a resident ethnic majority, but was still evident. An interactionist interpretation of emotion recognition is suggested by the authors, recognising both biological and cultural components of emotion understanding. It may be that in this current study the non-white population were showing an advantage over the white cultural group in the interpretation of non-white faces; further research with ethnic groups would be required to ascertain whether this was indeed the case, especially as the current study provided stimuli in the form of pictorial drawings and not photographic media.

9.2.3.2. Quality of Reasons for Change of Emotion

As previous research has shown a developmental process in the ability to mentalise about emotion (Harris, 1989; Piaget, 1965, Oandasan et al., 2001) it was hypothesised that younger children (aged six or seven years) would give age-appropriate concrete explanations for emotional change; middle range children (aged eight and nine) would provide more peer-related reasons (in accordance with a focus on peer relationships in middle childhood) and whereas older children (aged 10 to 12) would show more sophisticated, mentalising reasons. This did appear to be the case; age did make a significant difference. Scores showed a clear developmental progression with children in the early years giving fewer social and mentalising reasons but more inappropriate and physical answers than older children.

These results concur with those of Hughes and Dunn (1998) who found a developmental progression in both understanding of minds and the ability to articulate mental-state affect. However, girls between the ages of three and five years gave more mentalising statements than boys (Hughes & Dunn, 1998); something that was surprisingly not apparent in this current

study, despite the general expectation of verbal superiority in females aged seven to 11, suggesting the ability to mentalise about emotional change is not strictly dependent upon verbal maturity.

By middle childhood the focus of children's relationships is on peers and peer activities (Saarni, 1999). In line with reflective theory, younger children will have a less complex understanding of social and emotional interactions and are more likely to attribute emotional change to a simple physical cause like getting something nice to eat, or a toy, for a pleasant transition and being hurt or injured physically for an unpleasant transition (Oandasan et al., 2001). From primary years reports should incorporate the influence of others over emotional state, integrating social involvement with emotional change. It is therefore not at all surprising that, in this normative sample, the majority of children chose mainly social reasons for emotional change, as was predicted. This was particularly evident in the case of Boy faces (happy/sad): it may arguably be easier for a child to construct a 'story' around this than the Girl faces angry/happy transition. However, this second transition attracted the most sophisticated responses: 57 mentalising reasons, as opposed to 28 for the boy transition. Full coverage of the types of responses given by participants and how they were scored can be found as a supplement in Appendix 2.4..

Physical reasons for change given by a primary aged child could be indicative of an immature emotional outlook. However, it is important to recognise that without evidence in other areas of emotional functioning it would be unwise to base an assumption upon a single incidence. There is bound to be participant variability and for some children, were the question to be asked in a different way, the response may have been altogether more complex. A child (or an adult) may choose to provide the simplest possible answer to a scenario. However, a mentalising answer which refers to the process of emotional change either implicitly or explicitly would be indicative of a mature understanding of emotional transition and the effect of personal and social aspects in mood change. Some of the answers in this study were very mature and intuitive; these were found more frequently in older children than in younger, showing an expected effect of maturation.

There was a significant positive correlation between the reasons for change given for the Boy and Girl scenarios, showing a consistency generally in the ability of children to explain the process of emotional change. A higher proportion of children gave sophisticated answers to the 'Girl' question than the 'Boy' question, which was arguably the simpler of the two. This raises the possibility that offering a transition which is harder to explain in simple terms has required children to think harder about possible emotional reasons and therefore provide a more

sophisticated reason for change. The negative-to-positive valence transition may be harder for the child to conceptualise than the reverse; the happy boy in the first picture may be seen perceived as a 'normal' state, only requiring a reason why he may become upset or sad. In contrast, the angry girl has no immediate explanation; this requires the child to think of a reason why the child was angry in the first place in order to conceptualise a reason for the emotion to change. If this is true it may explain the slightly larger number of 'inappropriate' responses for the girl transition as being in part disorganised responses.

9.2.3.3. Affects of Sex or Ethnicity of Stimulus or Participant

In line with reflective theory it was predicted that some effect of sex would be found: girls might be expected to provide more sophisticated examples as during primary education girls generally have a higher reading age than boys of the same age (Flynn & Rahbar, 1994). There was no interaction between age and other variables (ethnicity or sex). Unlike recognition of facial emotion, there was no participant/stimulus interaction for complexity of reason. There was no difference between the level of sophistication in the suggestions of white or non-white children when viewing white or non-white faces, neither was any sex interaction found.

It was anticipated also that children with Special Needs would also be less likely to provide reflective answers in line with developmental delay and that differences in emotional perspective taking might lead to differences in reflectivity between normal and behavioural children. A longitudinal study of 187 school children in Canada (Phillips, Norris, Osmond & Maynard, 2002), found a higher proportion of boys than girls in the below-average category and a lower proportion in the average and above-average categories for reading in primary aged education, although the disparity disappeared during the secondary educational years. However, no difference in the sex or ethnicity of participants was found in the maturity of reasons provided for emotional change. Social reasons for change were predominant for both Girl and Boy faces.

There may be many individual reasons why some children will attempt a more sophisticated, mentalising response to a question about emotional change. A cultural effect for description of emotion was found with Americans inferring a greater intensity to the facial expression of emotion in photographic media than did the Japanese (Matsumoto, 2001). However, the Japanese students inferred a greater subjective intensity of emotion to the models than did the American students. This research showed that understanding the underlying quality of an emotional experience can be very different from the assessment of the emotion displayed. This was noticed with TD children in this current study. Some children attributed strong emotion to

the participant's features but could only provide a weak reason for the emotional transition. A number of children even provided a scenario that was discrepant to the original emotions appraised (see Supplement to Chapter 4). A far larger and more culturally diverse sample needs to be used to investigate any link between appraisal of emotion and the ability to describe emotional change.

To summarise, this study aimed to establish normal patterns of response in primary aged children to appraising emotional stance in a selection of ambiguous postures, labelling simple facial emotions and giving a reason why an emotion may have changed in faces. These abilities are aspects of emotional competence which are of interest in this study as they give an indication of the internal view the child has of others, their ability to correctly assess emotion in others and the maturity of their consideration about emotional aspects in relation to their peers. The study revealed that most typically developing children will view the presentations of others with fairly consistent labels: an 'arms akimbo' position is more likely than not to be viewed as intention and threatening, although a confident 'ready to play' alternative is also likely. Most typically developing children will view a stoop shouldered, head down and arms folded posture as depressive. A frontal posture with hands loosely folded to the front or in pockets will be seen as feeling variably friendly, sad or nothing much. Although individual differences may still occur, this is a pattern of assessment against which children with emotional problems can be compared. The majority of children correctly identified the emotional expression on the four faces. Some evidence was found of an interactionist interpretation of emotion recognition (Elfenbein, Marsh & Ambady, 2002) in that non-white children seemed to be at an advantage in discerning non-white faces. However, the general picture presented by this typical sample of children is of an established competence in labelling facial emotion by the age of seven; no developmental differences were found. As regards the maturity of reasons for emotional change, a significant majority of children gave comprehensible, age-appropriate social reasons which referred to peer friendships and playground issues.

9.3.2. Appraisal of Facial Emotion in BC Children

9.2.4.1. Appropriateness of Choice of Emotion

It had been hypothesised that BC children may be less accurate in their identification of emotion in static facial expressions, as children with poor social skills can show a delay in accuracy of recognising facial emotion, in particular sad, angry and fearful faces (Wocadlo & Rieger, 2006).

This was not the case. No significant difference was found between TD and BC children in the correct or appropriate categorisation of emotion: the majority of BC children were able to correctly interpret the four emotional expressions. Specifically, there was no significant difference between BC children and TD peers in identifying happiness, sadness and anger, supporting Ellis et al (1997).

9.2.4.2. Quality of Reasons for Change of Emotion

It had been hypothesised that BC children might have a higher proportion of concrete, as opposed to mentalising, reasons for change in emotion, as deficits in the use of mental state terms have previously been identified in children with clinical problems (Oandasan et al., 2001). However, this hypothesis was not confirmed; no significant difference emerged between BC and TD children in the quality of emotional reasons for change provided. BC children provided equally age-appropriate, mature, social or mentalising reasons as TD peers.

It should be noted that the mean age of this group was higher than the TD sample and age effects may have compensated for this population, in line with the developmental increase in the quality of mental-state references observed in TD children. However, it may also suggest that difference in appraisal of postures between BC and TD children may indeed be due to deficits in social information processing (Crick & Dodge, 1994) and not a general deficiency in recognising or explaining emotion.

9.4. APPRAISAL OF EMOTIONAL TRANSITION

An interactive computerised package named ‘MORPHO’ was used to examine the response of children to interpolations of pairs of emotional faces. Outcomes in terms of hypotheses relating to both TD and BC children are presented below.

9.4.1. Appraisal of Transition in TD Children

The aim of Study 3 was to look for developmental and sex related patterns in the discrimination of the transition of facial emotion using a series of photographic frames morphed to give the appearance of movement²¹ and in doing so establish a normative profile of responses for typically developing children in middle childhood.

9.3.1.1. Consistency in Identification of Transition Points

It was hypothesised that participants would be consistent in their choice of transition point for each emotional pair, regardless of the direction of the interpolation; furthermore no effects of sex, age or ethnicity would be apparent. By middle childhood children should be capable of consistently identifying core emotions from facial displays (Ellis, et al., 1997; DeSonneville et al., 2002). This was confirmed, in that the 85 children of the normative TD sample showed a high consistency in the ability to detect emotional changes in facial expression using the interactive programme MORPHO. Looking at ethnicity, sex and age there were very few differences between the two directional presentations of any of the 13 emotional pairs. Where these occurred these were complex interactions which could neither be confirmed nor dismissed without accessing a larger sample of children. The only significant delay in the ability to detect emotional change appeared where the transition was between two negative emotions or an emotion and a neutral face compared to other conditions.

Each of the 13 emotional transitions was examined individually for between-group differences. Sex differences were found raw consistency in only two cases - ‘Disgust /Nothing Much’ and ‘Angry/Sad’, with males seeing an earlier resolution to disgust than females and an earlier transition of anger towards sadness. No main effects were found for either ethnicity or age; two

²¹ It actually, the faces in MORPHO are not moving in the sense that they would be if it were a video. There are a series of transitions which when operated by the slider appear to move from one emotional expression to another.

interaction effects were identified with Non-White females showing a stronger consistency than White females for 'Scared/Nothing Much' and a complex three-way interaction (sex, ethnicity and year at school) for 'Anger/Nothing Much' that was not possible to interpret.

Possibly the most interesting of these results are the two emotion/neutral transitions. Why females should be less consistent in determining disgust than males and why non-white females should be more consistent in determining fear in a fear/neutral transition than are white females is not at all clear. The observation that females are choosing a later resolution of disgust towards the neutral face may be linked to a tendency for females to claim stronger disgust in self report for all areas except gastro-intestinal products (Barker & Davey, 1994), an observation which has been confirmed in a later study (Marzillier & Davey, 2004) where females responded more intensively across all explored negative emotions than did males.

Gur (2007) found that in a test of speed and accuracy in deciding facial emotion (using 5,700 women and 2,112 men) a clear result was found for females, who were both more accurate and faster at deciding facial emotion. Women consistently scored higher in the Emotion Test when compared to the equivalent groups of men in all age and education level categories; interestingly the accuracy of both groups declined with age. Response times also increased with age, although all age groups of men were slower in the tests than the slowest group of women (across all educational levels) (Gur & Gur, 2007). It must be noted, however, that the above research used static photographic faces and was a test of discrimination and reaction time, whereas MORPHO measures the ability to detect change and has no time constraints. It may be that sex and age are both related to reaction time but not awareness of transition. Certainly the younger the participant (youngest group aged 18 to 24) in the web based study performed best, and MORPHO participants were pre-pubescent and might therefore be expected to show good discrimination. Interestingly, sadness was consistently less well differentiated in MORPHO, being the only emotion not discriminated earlier in an interpolation from the neutral face to emotion than vice versa.

No differences in consistency were found in general for types of presentation; that is whether the emotional transition involved emotions of the same or different valence, or whether the transition was between two emotional faces or an emotional and a neutral face. This applied to all sub groups of sex, ethnicity and age as well. However, when the sex of the stimulus was considered, males were found to be more consistent in the rating of female faces than were females. Further investigation found that older children were more consistent in rating male faces than were younger children. No interactions between groups were observed. A poorer consistency for younger children when viewing male faces could suggest that male facial

emotion is harder to interpret than female facial emotion. Why boys should be more consistent than girls when viewing female faces is unclear. There are few studies that have examined sex-related differences specifically with regard to face and facial affect processing. Several studies have used event-related potential to measure response to facial stimuli: with seven month infants (Nelson & de Haan, 1996), with seven year olds and adults (Kestenbaum & Nelson, 1992) and with five year old children (de Haan, Nelson, Gunnar & Tout, 1998), showing differences in the processing of positive and negative affect, (for example happy versus angry). Using both electrophysiological and behavioural methods (Everhart, Shucard, Quatrin & Shucard, 2001), pre-pubescent boys have been identified as utilising more of their right brain and prepubescent girls more of their left brain to process emotional faces and identify emotional expression. This gave boys an advantage over the girls in both accuracy of recognition and reaction times when the image was presented to the right hemisphere. However, consistency amongst boys was not better than girls per se in the Everhart (2001) study and hemispheric preference does not shed any light on why pre-pubescent boys should be more consistent at assessing emotional change in adult female faces. There is, of course, a possibility of an interaction effect between the actual stimuli (and choice of emotions to be portrayed by male or female faces) and the sex of the participant: further investigation using the same emotions portrayed by both male and female faces would be needed to discount this possibility.

Of interest too were the differences in the way that children viewed male and female emotional faces. With evidence that females are more empathic than males (confirmed in Study 1) it was perhaps surprising that they were not more sensitive to emotional change than males, although it could be argued that taking longer to decide upon an emotional change may indicate not so much an insensitivity but a more complex process of consideration. However, whereas there were no differences in the way male and female stimuli were viewed overall, or to mean scores for sex, the finding that females are in fact less consistent in their response to the change of emotion in female faces than are males is an interesting one and hard to explain.

An age difference in response to the sex of stimuli was intriguing. Whereas mean scores for male faces showed that older children were seeing the point of transition later than younger children, older children were more consistent in their approach to emotional transition when viewing male faces. This raises the question of whether older children would be more sensitive to emotional faces per se given a larger sample, or whether younger children have more difficulty assessing emotion in male faces because of the adult component to this test; all facial stimuli was of adult models. The use of children's faces instead of adult faces, and a comparative study between the two, would help to identify whether there is a difference in the way that children handle facial emotion in their peers and in adults.

9.3.1.2. Dominance of Anger Stimuli in Perception of Change

It was hypothesised that the emergence of anger in an interpolation (for example from another emotion or the neutral face) would be recognised at an earlier point than other emotions, in line with the identification of an evolutionary threat-detection mechanism where angry faces are more readily detected in a display than other emotional faces (Ohman et al., 2001). Correspondingly anger should be retained in the perception longer than other emotions where the interpolation is from anger to another emotion. This was found to be the case: a significant difference was found between scores for transitions away or towards anger items, with anger dominant overall. This was predicted from previous literature (Mather & Knight, 2006; Öhman & Mineka, 2001; Fox, 2002).

A very strong effect for anger was observed in emotion/neutral transitions. Children took longer to discern the dissolution of anger than other valenced emotions. Looking at emotions emerging from the neutral face the same pattern was evident: anger is noticed significantly earlier in the interpolation from a neutral face. Closer analysis found anger always the most dominant emotion in neutral/emotion transitions; detected significantly earlier in the interpolation than any other emotion and taking longer to dissipate. In view of (Kestenbaum & Nelson, 1992) accuracy and reaction time tests with seven-year-old children and adults children would respond more dramatically to the presentation of angry faces than happy faces. This would be partially supported by this current research, although there was no significant difference in the identification of anger or happiness in an Angry/Happy transition.

9.3.1.3. Dominance of Fear Stimuli in Perception of Change

In addition to anger, it was hypothesised that there may be a dominant effect for fear, where the 'Scared' face is recognised more readily in an interpolation than other emotions. Some evidence for this possibility has been provided by studies with infants (Kotsoni et al., 2001; Leppanen et al., 2007), although no evidence was apparent for primary-aged children. This was partially supported; TD children were more sensitive to the appearance of the facial expression of fear when it was the target emotion that they were to the mean of emotions of happiness, sadness, surprise and disgust.

However, fear was not detected significantly earlier in a 'scared/happy' or 'scared/angry' transition, neither was there any effect for scared to neutral transitions; indeed happiness was detected earlier in an interpolation than fear in a comparison of neutral conditions. These results

also partially support Fox (2002) where a perceptual bias for fear was only observed in high trait-anxious individuals. However, the fact that some effect for fear was found in this sample does suggest that the threat-detection mechanism goes beyond a bias towards identification of angry faces alone (Kotsoni et al., 2001), which may be most evident in infancy and decline towards adulthood (Leppanen et al., 2007).

9.3.1.4. Effects of Different Types of Stimuli in Perception of Change

Regarding emotion-to-neutral transitions alone, in all but one case (that of sadness) participants found a significantly earlier point of change in the interpolation when a valenced emotion was paired with 'Nothing Much'. Arguably this is an expected result, as transitions towards valenced emotion involve an identifiable move from a passive state.

Regarding transitions of one emotion to another, some emotions were identified earlier in the interpolation than others: fear, anger and happiness. No difference was found between the transitions of happiness/anger, happiness/fear and anger/fear. Fear was detected earlier than sadness or surprise, happiness and anger earlier than sadness. Transitions between an emotion of one valence and another may be easier to spot than transitions between same-valence emotions. This however proved not to be the case. No significant difference in the point of the interpolation where an emotional change was detected occurred for either differently valenced emotions or emotional versus emotional/neutral blends. Children were not seeing the point of transition in a different place dependent upon the valence.

No sex, ethnicity or age differences were found in the above observations, neither were order effects in presentation observed; there was no difference in consistency dependent upon which transition was shown first. No significant difference was found for persistence in different valence (negative/positive and negative/negative) or between emotion/emotion and emotion/neutral presentations in any groups. Clearly this study is pointing towards an effect for certain emotions in the perception rather than a general effect for types of emotion.

In summary, both males and females responded in the same way to each of the transitions. The discovery that fear and anger stimuli were predominant in the perception of TD children is arguably the most important result of this study.

9.4.2. Appraisal of Transition in BC Children

A number of hypotheses were made concerning the performance of BC children in appraising emotional transition as compared to TD children.

9.3.2.1. Consistency in Identification of Transition Points

In the absence of any comparative research, no difference was predicted between BC and TD children in the consistency of response to emotional transitions. This was found to be the case, in that consistency in evaluating emotional pairs was equally as high as with the TD sample, with no significant differences in mean scores. Considering each emotional pair was presented at a very different time and the children in this sample showed concentration problems generally, the cohesion in responses was impressive. Although some extreme scores were noted, measures of central tendency for consistency across sessions showed most children were fairly constant in identifying the point of uncertainty. A lack of extreme Total Consistency scores in the BC sample, in comparison to the TD sample, may be a reflection to some extent of the administration process. All BC children received one-to-one sessions, which may have reduced the number error responses. However, as consistency measures the amount of variation between two different sessions, variability is largely due to the child's own internalisation of emotional signals as shown facially. One other factor that could be considered is that the children may have felt less pressured to make a swift choice as there were no peers present. This could have led to an increased likelihood of consistent responses, even though on some occasions the sessions were a few weeks apart. When compared to the TD sample there was no significant difference for Total Consistency. This would suggest that the behaviourally challenged children were at least as reliable as their typically developing peers in their ability to discriminate emotional change in moving faces. No age related differences were found in Total Consistency.

No significant differences in consistency scores for order of presentation, neutral versus valenced emotion, transitions of opposing valence versus same valence were found or sex of stimulus were observed between the BC and typically developing samples. Further investigation using a greater number of participants of all ages and the inclusion of females is desirable.

9.3.2.2. Dominance of Anger and Fear Stimuli in Perception of Change

It was hypothesised that a greater sensitivity to anger would be seen by BC children than TD, identified by an earlier awareness of the point of transition where anger was the target, based on increased sensitivity to perceived anger in peers by children with behavioural difficulties in

previous research (Sharp, 2001). It was also hypothesised that there may be less sensitivity to fear in BC children, in line with previous evidence of a fear recognition deficit associated with psychopathic personality characteristics (Montagne et al., 2005).

Looking at different aspects of emotional presentation, a threat-detection effect was observed in that strong effects were found for anger and fear related stimuli across the sample. As with the TD sample, some transitions towards anger or fear were recognised earlier in the interpolation than were any other emotions. Anger was also more resistant to extinction as it took longer to see another emotion emerge when the transition was from anger, apart from when the transition was from happiness. Interestingly, children in years three and four determined the point of transition to 'Angry' to 'Nothing Much' earlier than children in years five and six. An effect for the reverse transition 'Nothing Much' to 'Angry' was seen in the typically developing sample, with children in year three finding a later appearance of anger than older children. However, with only two children in the one age group, this difference can mean little in real terms. No significant difference was found in the point of recognition of anger stimuli between TD and BC children, despite a predicted bias towards anger in the response of BC children to emotional faces in comparison to peers (Sharp, 2001).

This effect was also true to a certain extent for the emotion of fear. After anger, fear was the emotion to be detected earliest in emotion to emotion transitions, except for happiness. It would seem that a threat detection effect can be identified by the MORPHO process and in common with other research is a basic and precognitive response to threatening stimuli. However, although patterns for fear and other emotions (apart from anger) were the same as with typically developing children, behaviourally disturbed children also saw anger as dominant over fear in emotion to emotion transitions, making anger overwhelmingly the most readily detectable emotion. Whereas children in the TD sample did not identify anger sooner than fear in anger/fear transitions, BC children did, suggesting they may be more responsive to anger stimuli (Barth & Bastiani, 1997; Kirsh et al., 2006) than TD children, or alternatively less sensitive to fear stimuli (Montagne et al., 2005) as in individuals with psychopathic personality characteristics. Further research using an extended repertoire of fear and anger transitions would be required to ascertain any consistent pattern of difference in the response to anger and fear stimuli. A version of MORPHO that provided transitions to fear and anger of all other primary emotions (and the neutral face) using the same models might help to identify whether the BC children really are more sensitive to anger than TD children, or less sensitive to fear.

One possible explanation of a difference in response to fear stimuli between typically developing and behaviourally challenged children might be found in the work of Weinberger,

(Weinberger, Schwartz & Davidson, 1979). Weinberger and colleagues expanded the two-type model of anxious/non anxious individuals in response to threat-related stimuli to include the category of ‘repressor’; individuals who avoid attending to threat-related stimuli by operating an opposite selective-attentional bias. Such individuals would exhibit a paradoxical profile in that they rate highly for physiological anxiety but interpret ambiguous stimuli in an overtly non-threatening way. This has been demonstrated by the combination of denial regarding behavioural anxiety in self-rating combined with raised heart rate and other physiological symptoms during an anxiety-provoking task of public speaking (Derakshan & Eysenck, 1997). It is worth noting that high anxious individuals attributed their raised heart rate and other physiological symptoms to anxiety whereas repressors claimed they simply found the exercise ‘exciting and challenging’ and denied feeling anxious. It may be that children with severe behavioural disorder are repressing some of their natural fear responses as a consequence of frequent confrontational episodes.

9.3.2.3. Effects of Different Types of Stimuli

Comparing the BC sample to typically developing children, three occasions where BC children chose a significantly delayed point of uncertainty were identified: ‘Scared to Happy’ and ‘Sad to Nothing Much’ and ‘Angry to Scared’. Out of a series of 26 transitions this is not a notable difference. No difference in the point of transition for emotional blends was found between male and female stimuli, neither were age effects observed. As with the TD sample no significant difference was found between scoring for ‘emotion/emotion’ and ‘emotion/neutral’ presentations, or between ‘positive/negative’ emotional transitions and ‘negative/negative’ emotional transitions. Again, examining ‘emotion to neutral’ versus ‘neutral to emotion’ transitions identified the same pattern as with typically developing children, in that BC children are seeing a valenced emotion from the neutral face significantly sooner than they see the return to the neutral face or any other emotion-to-emotion transition. A marked persistence of emotion, when transitions return from a valenced emotion to a neutral expression, was therefore a common feature of both groups.

9.3.2.4. Other Issues: Effect of Trait Anxiety

It was hypothesised that an effect for anger in perception would be heightened in children with high trait anxiety, as previous studies have seen enhanced response times in the identification of anger in faces in high trait individuals, reflecting a sensitivity to angry stimuli (Hadwin, et al., 2003). However, there were no significant correlations between either State or Trait anxiety and

the scores for consistency in MORPHO, suggesting that anxiety was not affecting their abilities to consistently discern emotional transition.

Although a bias in emotional appraisal had been seen in appraisal of body posture, it did not appear to be linked to over-sensitivity in the perception of facial anger and other negative emotions in this study. Analysis did not reveal any notable differences from the typically developing sample, other than a few minor differences which could not be interpreted coherently. State anxiety was not a feature of this population, which could have facilitated the recognition of anger in faces (Hadwin et al., 2003). Some comparisons which may have been useful could not be made as there was only one female participant and a very unbalanced representation of age. Results for behaviourally challenged children were interesting but in the main not notably different from those of the Typically Developing sample in Study 3.

No correlation was found between consistency in MORPHO sessions and depression in this study. This was not expected, as there has been no previous research to suggest that the ability to detect a change in emotional expressions per se would be moderated by depression.

9.3.2.5. Evaluation of Activity

Children evaluated the activity in terms of 1) how much they liked it (Activity Evaluation), 2) how easy it was to understand the task (Task Evaluation) and 3) how easy it was to discriminate between different facial expressions (Faces Discrimination). Response was varied: significantly more TD children liked the activity than disliked or were unsure about it; no children in session one said they disliked like the task, which may reflect the novelty aspect. Significantly more children understood the activity than found it difficult or were unsure. Opinion was mixed as to the ease of recognising the faces; less children found the faces difficult to discriminate than were either confident or not sure. Children who found the task easy also found it easy to discriminate in both session; children who found it easy to discriminate faces enjoyed the task more. This was consistent across sex, age and ethnic group.

Most BC children enjoyed the activity and found it easy to understand. Significantly more children said they found it easy to discriminate between the faces than were unsure or found it hard, unlike the TD sample in Study 3, where opinion was mixed. This could well be the result of greater confidence due to having individual sessions and attention. Interestingly Task Evaluation and Enjoyment Evaluation did not correlate across the two sessions, as it had done previously, indicating a less consistent attitude towards the task in this group. There were three emotional transitions out of 26 where BC children scored significantly differently than the TD

sample, but few other differences. Due to the lack of female participants it was not possible to investigate the sex of stimulus/sex of participant interaction. Children in both samples are showing a distinct threat-detection mechanism which is illustrated by the persistence of angry and fear related items in comparison with other emotions and this is considered below.

9.3.2.6. Summary

In summary, although a bias in emotional appraisal had been seen in appraisal of body posture, it did not appear to be linked to over-sensitivity in the perception of facial anger and other negative emotions in this study. Analysis did not reveal any notable differences from the typically developing sample, other than a few minor differences which could not be interpreted coherently. State anxiety was not a feature of this population, which could have facilitated the recognition of anger in faces (Hadwin et al., 2003). Some comparisons which may have been useful could not be made as there was only one female participant and a very unbalanced representation of age. Results for behaviourally challenged children were interesting but in the main not notably different from those of the Typically Developing sample in Study 3.

9.5. LINKS BETWEEN BEHAVIOUR AND SCORES IN BC CHILDREN

A 'token economy system' was used form of operant conditioning in two out of three schools involved in this study. Token counts were used by the author to monitor changes in child behaviour over the time of this study. This proved very consistent in that weekly and daily totals were correlated across both administrations.

9.4.1. Behaviour and Emotional Competence

No correlation was found between the award of tokens and any factor of emotional competence. There were sufficient variations in the number of tokens different children received for any link between behaviour and scoring to be evident, but it was not. This in itself is interesting, as it suggests children's responses were not determined by transitory conditions, fluctuations in mood or reward (as in how well they had been doing that day) but were a reflection of dispositional feelings about their own emotional competence.

9.4.2. Behaviour and Emotion Appraisal

There was no correlation between token counts and choices of depressive or confrontational affect, suggesting children were not being influenced in their choices by the how well they were doing in the classroom environment.

This may not be the whole story, however. Although behavioural tokens are a good measure of a child's overall compliance within their environment (tokens were awarded for every 10 minutes the child behaved well or cooperated) they are not sensitive to specific factors in the child's behaviour; for example a certain amount of verbal abuse from the child may be tolerated without the withdrawal of reward if the child is still actually complying with the general task in hand. It is not possible from a token count alone to examine the severity of the child's bad behaviour or the extent of their good behaviour, only that it was of sufficient impact to have incurred the denial or receipt of a token, and this might vary amongst teaching staff. For example, the author whilst on the premises of one school witnessed an outburst by a child who

left the classroom and after a physical struggle was restrained by a member of staff and returned forcefully to the classroom kicking, struggling and issuing verbal profanities. The member of staff reasoned with the child for several minutes until the child resumed the work they had been engaged in. As the episode, although violent, took no more than 10 minutes to conclude and no physical damage to property had been incurred, the child would not have lost any tokens but was not awarded one for that 10 minute period. The loss of one token could be said not to be a very accurate reflection of the quantity and quality of problem behaviour illustrated by the child, which included physical and verbal aspects. Further research using a graded category scheme of measuring externalising behaviour on a weekly basis is recommended for future investigations of children with severe behavioural problems, such as that designed by the author and shown in Appendix 4.6.

9.6. LIMITATIONS AND RECOMMENDATIONS CONCERNING CURRENT STUDIES

9.6.1. Emotional Competence

9.6.1.1. Other Moderators of Emotional Competence

It cannot be ignored that there were a number of items on the three questionnaires which failed to be related to the affective skills and differences, as proposed by the model, but nevertheless were predictive of emotional competence. Although SEM failed to give an acceptable and cohesive explanation of these items in terms of underlying factors, it may well be the case that they represent aspects of another variable that has a substantial influence on emotional competence in children. This needs to be further explored, particularly issues such as a relationship between Theory of Mind tasks and high scores in some key competency areas, for example the understanding of empathy.

One of the most contentious issues is how far emotional competence correlates with verbal intelligence and literacy skills, particularly in childhood. Age related differences were found within this study but consideration was not given as to whether scores for emotional competence in TD children were related to literacy in the form of either general literacy or in particular Verbal IQ. Claims have been made that emotional competence in adults is closely correlated with verbal intelligence (Barchard 2003). Indeed Barchard (2003) claims that the MSCEIT correlates significantly with verbal ability to $p < 0.01$. Looking closer at Barchard (2003), verbal IQ correlates significantly with many of the performance related measures on the MSCEIT but not with self-report measures of empathy, empathic concern or positive and negative expressivity. The scale of 'recognition of emotion in others' alone correlated with verbal ability to $p < 0.05$. In answer, Brackett & Mayer (2003) found in a similar study that the MSCEIT not only discriminated well from personality and well-being measures but was still predictive of social 'deviancy' when personality and verbal IQ were held constant. However, scores on a verbal Statutory Assessment Test (SAT) were positively correlated with the performance-related MSCEIT but not with the earlier Self-Report Emotional Intelligence Test, where no correlation was observed. The fact that emotional competence is measured in this study by self-report and does not include performance related aspects may be a positive indication for this current study.

Another possible confounding issue for emotional competence testing is the possible overlap of scales with personality. The MSCEIT, one of the most popular adult academic measures of overall emotional intelligence, incorporates both self-report and performance-related scales and competencies but does not integrate personality factors such as optimism, business skills and self-esteem. However, a meta-analysis of adult emotional intelligence measures (Conte, 2005) supports the suggestion that many emotional competence tests appear to measure areas that overlap with personality characteristics, but interestingly not that emotional competence is moderated by traditional intelligence.

Research into emotional competence in adults can be useful in considerations regarding verbal intelligence and personality in relation to emotional competence in this study; however verbal ability may be more a consideration in child-based studies, particularly very young children. It may be that emotional competence is not moderated by verbal ability directly, but that the relation is more complex. A positive correlation between verbal ability and a generalised ‘emotional knowledge’ in children from disadvantaged families (Izard et al 2001) was interpreted in terms of emotional knowledge mediating the effect of verbal ability on academic ability between the ages of five and nine years. This mediating effect of emotional knowledge on academic outcomes was still significant after controlling for verbal ability.

A comparison of the MSCEIT and scores on both a Big Five personality test and intelligence in Spain (Gil-Olarte Márquez, Palomera Martín & Brackett, 2006) has found the MSCEIT to only moderately correlate with personality and verbal intelligence and such correlations as were found between component competencies and academic grades in high-school students were still significant when controlling for personality and verbal IQ.

9.6.1.2. Recommendations

Whilst there is some ongoing criticism of self-report scales as a methodology, such measures continue to be a valid and useful measure of emotional competence. Self-reports from eight to nine year-old children concerning emotion regulation, for example, correspond with adult reports (Rydell, Thorell & Bohlin, 2007). In addition, good emotion regulation was related to prosocial behaviour. There is also corroboratory evidence that children with high self-reported emotional competence scores are better liked than their peers and are less disruptive and aggressive (Petrides, Sangareau, Furnham & Frederickson, 2006).

Although this study has provided three coherent questionnaires to measure key competencies, in the long term revisions should be considered, particularly for Affective Perception (APT-C).

The second factor (self-understanding) requires a additional items with a good reliability; in addition a revision should consider the omission or rewording of items that either did not factorise “*I know which of my friends is good at pretending*” or loaded poorly on the scale: “*When I feel bad, I don’t know who or what is upsetting me*”. Items which were negatively worded (for example, “*I don’t often know when someone is about to cry*”) could be revised to become positively worded, removing ambiguity particularly for younger children. Although retaining negative items was thought to be advantageous in an adult scale, negative items have been reported to impair response accuracy and reliability (Schriesheim & Hill, 1981; Barnette, 2000; King & Emmons, 1990) in children.

The APT had 14 items, the ACT even fewer, but the ACT was measuring a smaller level of functioning (and the APT too, to be fair) than the APT-C endeavours to do. Some items on the interpersonal perception scale were keying in to the same area of affect appraisal, although differently worded. These items could be reduced, allowing the scale to be expanded in other areas without greatly increasing the number of items. The item “*I know if music is supposed to be happy or sad*” did not factorise on to intrapersonal perception, as was expected, but onto interpersonal perception. In hindsight the focus is on the emotive quality of the music and not on the listener; this could be adapted to factorise onto intrapersonal insight by a rewording such as “*I know which kinds of music can make me feel happy or sad*” or even briefer to “*I can tell when music is making me feel happy or sad.*” Another item “*My friends do things to cheer me up*” again focussed on the emotional intent of friends rather than on the person’s own understanding of their feelings. This could be reworded to change that focus: “*Friends can change my mood by doing things to cheer me up*”. An item dealing with awareness of mixed or simultaneous emotions would have been useful, although this would introduce a marked developmental aspect to the scale. The awareness that it is possible to have mixed emotions occurs at an earlier stage during middle childhood than the acknowledgement of having experienced mixed emotions oneself (Harter & Buddin, 1987). The ability to describe an experience of opposite-valenced emotions does not appear to consistently occur until the age of 10 to 11 years. Other possible areas for addition to an intrapersonal subscale could concern perception of annoyance before losing one’s temper or knowing what one is feeling when experiencing disappointment. Any scale regarding understanding of internal affect is not going to be large as there is a limit to the number of viable scenarios that can be presented, particularly as a child measure.

Very little differentiation between BC and TD children was seen in this study: in general BC children are reporting at least equal functioning in terms of Emotional Competence, including Affective Perception and Empathy, and consider themselves to be more Expressive. This raises

the question as to whether the behavioural difficulties of such children are actually related to emotional competence at all, or whether this current study did not go far enough to identify points of difference. Certainly the aspect of emotion regulation is one that needs to be more thoroughly explored; this study will hopefully provide a base from which this can be extended. Further exploration of emotional competence needs also to address some of the acknowledged limitations of this current research; a comparative study using Theory of Mind skills, attachment category, a measure of verbal ability (in the form of simple and easily administered scale) and aspects of personality, as distinct from emotional competence.

9.6.2. Emotional Appraisal

The mixed design of the Emotional Appraisal study using four postures and mixed sex and ethnicity (Study 2a) provided clear differentiation between BC and TD children in the form of evidence of a hostile appraisal bias in the former. The activity naming emotional faces (Study 2b) showed no differentiation between BC and TD children; rather a ceiling effect seemed to be evident; however the ‘reasons for change’ question did differentiate well in terms of age differences.

9.6.2.1. Limitations and Recommendations for Body Postures (Study 2a)

With a sample of only 20 children with severe behavioural problems and no comparative sample from mainstream schooling, it is difficult to generalise the findings of this test to the majority of children who have behavioural problems. The consistency observed in the appraisal of postures by TD children was encouraging and one of the aims of any future research should now be to use this material with a much larger sample of children with behavioural problems; not only those withdrawn from mainstream schooling, but those showing difficulties within the mainstream school system.

This measure did not include any sort of ‘practice activity’, as it was thought that this could very easily lead to priming, as the object was to elicit a spontaneous response. No ‘example activities’ were provided, as was the case with the Questionnaire Pack (food-based examples). There is the possibility, therefore, that some children may not have understood the task. It may be that the use of some other broadly related stimulus prior to the presentation of the ambiguous body postures would act as a control condition which would allow the identification of such children. A series of animal figures /faces (such as teddy bears) with facial expressions that indicated some degree of affect, such as slightly smiling, slightly sad, slightly cross and neutral

affect, along with the same scales to be used, could provide such a control condition. If a child was unable to make a decision regarding affect where it was possible to determine such from the faces, it would suggest they did not understand the activity and it would be doubtful whether they would be able to make a similar judgement where no clear facial expression was evident.

The results of this investigation raise the possibility of using this procedure not only to investigate differences in emotional bias in appraisal of affect in children with behavioural problems, with other populations as well; for example vulnerable children who have been subject to abuse or neglect, or those in long-term care or needing extensive hospitalisation. Even within the TD population a very few children made what (in terms of general appraisal) was an unusual choice of affect. For example in the 'Hands Folded' condition a number of children chose the option 'Like Fighting'. For a posture considered most unlikely to be rated as threatening or unpleasant (Pease & Pease, 2003), this was an unexpected response. Such appraisals were by no means common (although they did occur across most postural presentations) and could therefore be considered distinctly atypical. One of the long-term applications of the Picture Pack envisaged by the author is as a simple tool to investigate appraisal bias in a pupil causing concern. A predominance towards choosing depressive or confrontational feelings when appraising ambiguous pictures of other children could be a cause for concern and would certainly be an indication that the child's emotional state needed some investigation.

The postures of 'Hands in Pockets' and 'Hands Folded' are very similar and similarly rated within a typical population, unlike the other two postures. The extension of the pictorial scales to include an adaptation of the drawings with a child with hands free, but not as stereotypically action oriented as 'Hands on Hips', may allow a more effective identification of depressive appraisal bias, as it could be argued that having hands covered is an indication of withdrawal.

9.6.2.2. Limitations and Recommendations for Emotional Faces (Study 2b).

This Study used pictorial representations of children as the stimulus whereas most studies examining affect have used adult models (Hess, Blairy & Kleck, 2000; Begeer, Rieffe, Terwogt & Stockmann, 2006) Photographs of adult faces are generally used to judge the ability of both adults (Hess et al., 2000) and children (Begeer, et al., 2006) to correctly assess facial expression of emotion. This may make it hard to generalise the findings of this study in terms of previous research, but it could be argued that using full pictorial representations, rather than schematic drawings, allows a more varied interpretation of affect, which is an advantage. The fact that a small number of children did construe an atypical, but not impossible, emotion to some of the

faces suggests they are drawing on their own internal processes, not simply looking for stereotypical explanations, which would be the case with schematic drawings.

This raises an important issue for the validity of this current study, as children may find it easier to discuss emotional change with reference to children's emotions than adults. The reasons given as to why emotions may have changed could well have been different if adult faces had been used and a comparative study using adult and child faces could prove interesting. Indeed there was something of a 'ceiling effect' in this study, which may suggest that the emotions provided were too 'easy' to elicit any differences in children of this age group.

However, the aim of this study was to examine children's responses to emotion in peers. For this reason it was important that 1) participants drew on their own experience when making emotional assessments and 2) the assessments were representative of how children would view their peers in a real environmental situation. The author deemed they were more likely to do this if they were viewing faces of other children and not of adults.

It has to be considered, in any test that requires interpretation using verbal prompts, that there are alternative explanations for the difference in scores. In the case of this activity, the aim was to establish whether or not BC children would show less mature reasons for change than typically developing children; a possibility as deficits in social skills have been associated with clinical behavioural problems. However, a global delay in literacy, often observed in BC children (especially boys) may also affect the use of mental state terms. Boys are also more likely to have a lower reading age than girls (Flynn & Rahbar, 1994) and all but one of the BC children with severe behavioural disorder were male. However, despite a lower reading age in comparison to TD children of the same age, no difference was found in the use of mental state terms between populations, suggesting the capacity was not directly related to reading age. However, as previously discussed, there were problems with the measurements of reading ability made available to the author for this activity and it would be strongly recommended that a simple test for verbal ability be included in any future administration of this measure.

Occasionally a child gave a reason for emotional change that bore no relationship to the two faces previously viewed, suggesting some ambiguity in the task. Naming the child in the pictures (to ensure participants understand it is the same child), modifying the 'reason' question to include an acknowledgement that the child's emotion has changed and rewording of the question for greater clarity may help to avoid such incidents, for example: 'If you think Bob is not feeling the same in picture 2, please give a reason why Bob might have changed from

feeling one emotion to feeling another.’ However, as the main limitation of this measure was the lack of differentiation between participants groups (apart from age)

9.6.3. Emotional Transition

9.6.3.1. Limitations and Recommendations for Emotional Transition (Study 3).

Whereas most children in the TD sample appeared to quickly understand the concept of one facial expression merging into another, some did not and required a series of prompts (see Chapter 7.4.3). It may well be the case that some incidents of ‘rogue’ scores in the sample were also due to the child not understanding the process. This is a serious limitation in the long term for a measure which was designed to be used by a child without one-to-one tuition and links to possible design weakness: the lack of a control condition. It was thought during the development of the test that having a series of practice frames would be enough to enable the child to understand the process of morphing of one facial expression to another, but this may not universally be the case. However, the lack of a control condition also raises the issue of whether some other moderating factor, other than the awareness of emotional change, enables a child to effectively respond to the task. The inclusion of a control condition, prior to the practice condition, where the child needed to differentiate the point of transition between two morphed images (for example one animal head morphing into another) would give an indication to the researcher of whether or not the child really does understand the process and the requirement to choose the point at which the image is neither one animal nor has become the other, but they are aware that change is taking place. By this means it may also be possible to identify children who are particularly astute at picking the point of transition in any interpolation and where this may impact on their choice.

It might however be expected that if the participants did not understand the task, or alternatively were very good at differentiation between two images, points of transition would be consistent for all image pairs. However, this was not the case with anger and fear, which were consistently recognised earlier in interpolations where they were the target emotion in the TD sample. This raises another possible limitation of the current stimuli; that of a confounding effect of the neutral face condition in some transitions. A truly neutral face, lacking any invitation to interact, may be interpreted as slightly hostile (Ohman et al., 2001). The effect for angry stimuli, whilst it concurs with other research in this area, could be open to question as the neutral face may have been interpreted as threatening at the outset, particularly as the model has a mouth that naturally slopes downwards. This may explain to some extent why anger was

detected an earlier point in the 'Angry/Nothing Much' display compared to all other emotions. Threatening and neutral faces are more similar to each other than are friendly and neutral faces. Angry and neutral faces can be confused by participants (Hansen & Hansen, 1988) and the identification effect of an 'angry face in a crowd' was significantly reduced when neutral, rather than happy, faces were used as foils. However, if this were the case it could be argued that emotional change would actually be detected at a later point, as this test asks the participant to identify emotional change, not an emotion per se. In addition, most research involving detection of an emotion from within an array of different-emotion faces uses schematic stimuli (e.g. Ohman 2001), which it could be argued has a low ecological validity in comparison to real life photographic displays. Schematic stimuli generally only change in two regards: a manipulation of eyebrow and mouth position. The criticism could be made that the task of isolating one differing schematic face from an array of others becomes something of a 'spot the difference' task, especially as some stimulus differences are very angular and overt: for example eyebrows being represented by / \ or by \ / as happy and angry respectively. These are not lifelike positions.

Another possible criticism some transitions is the possible confounding effects of movement and proximity in the transition. However, such artefacts were not exhibited across all presentations of each emotion and the overall effect of change on the perception of the viewer was consistent in all cases.

Future use of MORPHO should include surveying a much larger population of children in primary schooling. Some trends (such as developmental differences in consistency) need to be explored further. With a larger sample it might be appropriate to remove cases from analysis where children have extreme scores in either direction. A larger sample would allow the researcher to either confirm global differences in the dataset or dismiss them as individual variation. Ideally some of the changes to the activity proposed above and in Chapter 7.4. should be implemented before this takes place.

9.7. CONCLUSION

This thesis aimed to formulate and test a model of Emotional Competence (EC) and to enrich understanding of the link between EC and behavioural problems in middle childhood. To do this the emotional competence and emotion appraisal of typically developing (TD) children in mainstream schooling were compared with a sample of children excluded from mainstream schooling for severe behavioural problems (BC children).

A series of four test measures were administered first to mainstream children. In a measure of perceived emotional competence TD, SEBD and BC children rated themselves equally competent, whereas SEN children judged themselves less interpersonally perceptive than their peers. Gender differences emerged in both cognitive and affective empathy, with girls outmatching boys in both areas. An inter-group effect for affective empathy (although expected) was found with girls only. Boys rated themselves less intimately expressive than girls and BC children rated themselves more Expressive in all respects than TD children.

Developmental patterns and sex differences in emotional competence in TD children are also illuminated by this study; in particular the identification of sub-factors in three key competencies of emotional competence enabled a new understanding of previous research conclusions. Girls are indeed more empathic, but only in the area of affective empathy. Girls are also more emotionally expressive, but only in the area of intimate emotion; boys are just as willing to express themselves gregariously.

Typically developing children rated a series of ambiguous whole body postures for affect and intentionality, providing patterns of response which could serve as a guideline for further research. This pattern included the likelihood that certain postures would be rated as 'confrontational' or 'depressive'. Black stimuli were rated overall more negatively than White stimuli and boys attracted more negative affect appraisals than girls. Most TD children correctly appraised facial emotion and gave age-appropriate social reasons for change. TD children were very cohesive in their determining of emotional transition. A significant effect was found for anger, which emerged as dominant in perception compared to other emotions except fear. BC children appraised neutral postures significantly more confrontationally than their peers, as predicted, supporting the premise that children with chronic behavioural problems have a tendency to make an uninformed, spontaneous responses to emotive signals of others and that this is related to deficits in social information processing. It may be children with behavioural problems in mainstream schooling will also show a bias in appraisal of affect;

Shiffrin (Shiffrin & Schneider, 1977) suggests this tendency to make spontaneous, preconscious judgements of others is a presenting feature in children with long-term externalising behaviour problems. However, without further work this has to remain conjecture.

BC children were equally good as TD children at identifying emotional faces and providing reflective answers to emotional change. Whereas most TD children by the age of seven are able to identify emotional expression in faces, children of non-white ethnicity were more consistent in labelling emotion in the faces of non-white children, in comparison with white peers. Semantic reasons for the change of emotional expression in two faces showed a distinct developmental pattern, with older children giving more complex and reflective reasons than younger peers. BC children were as mature in the reasons they gave for emotional change; however, it must be cautioned that their chronological age was higher than that of the typically developing sample, and that significant age effects were seen in Study 2b.

Looking at emotion transition, patterns of responses of the two groups were very similar; BC children were equally consistent in their judgement of the appearance of emotion in displays. However, whereas TD children did not see a dominance of anger over fear, BC children did. Whether this is due to a heightened sensitivity to anger or a lesser sensitivity to fear is inconclusive without further research. Little cognitive difference was found in the transition of emotional faces between BC children and TD peers. Both groups showed a threat detection bias in that anger (and to some extent fear) was dominant. The one interesting effect, a superiority of anger in a transition with fear with BC children only, may serve to suggest that such children are either less attuned to fear or more attuned to anger than their peers. The fact that a significant effect for fear was found in the typically developing population was interesting in itself: it concurs with infant studies (Leppanen et al., 2007) and although adult studies have only found such an effect in high-anxious individuals (Fox, 2002) this study would suggest that the effect continues into childhood; certainly until puberty.

The studies reported in this thesis have identified areas of difference and similarity between these populations. In addition a model of Emotional Competence and links with Affective Skills and Differences through Key Competencies of Perception, Empathy and Expressivity has been posited and examined. This thesis throughout has contributed to knowledge and understanding at both a cognitive and an applied level and in the process developed a number of new measures that can be used both to further research and ultimately to assist in the identification of maladaptive thinking patterns in children with severe behavioural disturbance in mainstream and special school systems.

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APPENDIX 1: INTRODUCTION AND STUDY 1

1.1. ETHICAL APPROVAL

Psychology Curriculum Group REQUEST FOR ETHICAL APPROVAL

No study may proceed until this form has been signed by an authorised person, indicating that ethical approval has been granted.

This form should be accompanied by any other relevant materials, (eg. a copy of the research protocol, questionnaire to be employed, letters to participants/institutions, advertisements or recruiting materials, information sheet for participants¹, consent form², or other.)

Name of principal investigator: Jackie Meredith

Name of supervisor/tutor: Dr. Mark Coulson

Name(s) of student collaborator(s), if any:

TITLE OF STUDY

The role of deficits in affective perception and recognition, and distortions in interpersonal affect (emotional intelligence), in behaviour disturbance in primary-aged school children.

Please give a brief description of the nature of the study, including details of the procedure to be employed. Identify the ethical issues involved, particularly in relation to the treatment/experiences of participants, session length, procedures, stimuli, responses, data collection, and the storage and reporting of data.

This is a Pilot Study consisting of a three questionnaires – to be administered with instruction by the researcher or class teacher, as requested by the individual school. Some older children may be able to complete questionnaires without assistance after the instructions have been read out. Instructions will be in a standard, written form.

To be administered to a normal population (those not registered for Emotional Behavioural Disorders [EBD]) of Primary ages school-children in years 3 to 6 (ages 7 to 11). Full informed consent will be obtained from parents and child. Children will be fully briefed about what they have to do in line with ethical requirements, and their option to discontinue the task at any time will be made clear. Questionnaires have been styled so as to make the completion a pleasant experience for the child. Testing will take place in the familiar environment of the child's school.

Questionnaires target child's friendships, response to friendship issues and emotional expressiveness. Questionnaire No.1 is a validated measure, (used consistently since 1982), questionnaires 2 and 3 are new child adaptations of validated adult measures, using similar parameters and formats.

Questionnaires require the completion of Likert scales in response to statements about the child's friendships, for example, with the prompt to choose which comment best represents the way things are for them. These Likert scales and comments are varied slightly between the three questionnaires, in line with previous measures. Sessions are expected to last for no

more than 30 minutes for each child – older children may well complete it in less time. Some reading assistance may need to be given for younger children ages 7/8. Children will complete the questionnaires with pen or pencil and provide details of age, birth date, year at school and gender. For confidentiality, no name will be required.

Data will be stored in an Access database on computer and transferred into SPSS (and possibly other statistical packages) for analysis. Results will be reported as samples (from each of the schools involved) and treated as a normal population, for the purposes of this study. Individual cases will not be analysed at this time.

A computerised version of the three questionnaires is in progress. This will feed directly into an Access database. All questions and stimuli will be the same as the paper version. This computerised version will be used for the subsequent study of children with behavioural difficulties.

Sample questionnaires (half original size), parent/child information sheets, parent/child consent forms and administration instructions are attached.

How does the proposed study contribute to knowledge?

By attempting to isolate the three major components of emotional knowledge – perception, expression and empathic concern, in a normal sample of junior Primary school-children. Once standardised, these three measures will be used along with other tests to examine differences in response and appraisal in children with behavioural problems. It is intended that this will identify possible deficiencies in emotional knowledge occurring in this population.

Computerised version of tests will be useful for behavioural disturbance population who are often resistant to filling in paper forms, and should provide greater enticement to complete the questionnaires.

2. Could any of the procedures that you are proposing to adopt result in any adverse reactions? **YES/NO**

If “yes”, what precautionary steps are to be taken?

3. Will any form of deception be involved that raises ethical issues? (Most studies in psychology involve a mild degree of deception insofar as participants are unaware of the experimental hypotheses being tested. Deception becomes unethical if participants are likely to feel angry or humiliated when the deception is revealed to them.)

YES/NO

If participants other than Middlesex University students are to be involved, where do you intend to recruit them?

From local schools in the Greater London and Essex area. These schools will represent a range of child populations, including those with a high proportion of E2L (English as second-language) children and Church of England schools.

5. Does the study involve

Clinical populations

YES/NO

Children (under 16 years)

YES/NO

Vulnerable adults such as individuals with mental health problems,
learning disabilities, prisoners, elderly, young offenders?

YES/NO

6. How, and from whom, will informed consent be obtained (see *consent guidelines*²)?

From parents and children (forms attached)

7. Will you inform participants of their right to withdraw from the research at any time, without penalty (see *consent guidelines*²) **YES/NO**

8. Will you provide a full debriefing at the end of the data collection phase (see *debriefing guidelines*³) **YES/NO**

9. Will an opportunity exist to discuss the study with the participants to monitor any negative effects or misconceptions? **YES/NO**
If “yes”, how do you propose to deal with such problems?
Not really – see attached sheet

10. Under the Data Protection Act, information about a participant is confidential unless otherwise agreed in advance. Will confidentiality be guaranteed? **YES/NO**
If “yes”, how will this be assured? If “no”, how will participants be warned?

Children will be identified only by ID number, school number and date of birth. Any published results of this study will not identify any of the participants or the schools from which they originated.

(NB: You are not at liberty to publish material taken from your work with individuals without the prior agreement of those individuals).

11. Are there any ethical issues which concern you about this particular piece of research, not covered elsewhere on this form? **YES/NO**
If “yes” please specify:

(NB: If “yes” has been responded to any of questions 2,3,5,11 or “no” to any of questions 7-10, a full explanation of the reason should be provided on a separate sheet, and submitted with this form).

I have read the British Psychological Society’s *Ethical Principles for Conducting Research with Human participants*⁴ and believe this proposal to conform with them.

Researcher..... date

Signatures of approval:

Supervisor..... date

Ethics Committee..... date
(approval granted for the study to proceed)

^{1,2,3,4} **Guidelines are available from the Ethics page of SOCNET**

REASONS FOR INVOLVEMENT OF CHILDREN UNDER 16 YEARS.

REF:

5. Does the study involve:

Children (under 16 years)

YES/NO

As this study is setting out examine emotional knowledge in primary aged school-children, it is necessary to carry out this research with children aged under 16 years.

Full parental consent will be obtained for all participants, along with child consent. Information sheets explaining the study and its purpose will be provided to both parents and children. Full standardised instructions will be given by the researcher.

No names will be used in recording, analysis or publication of the statistics gathered in this study.

REASONS FOR NOT FULLY DEBRIEFING CHILDREN.

REF:

8. Will you provide a full debriefing at the end of the data collection phase
(see debriefing guidelines³)

YES/NO

The children will be given a verbal opportunity at the end of the test to say what they thought of the questionnaires. In addition the child will be given the opportunity to express, by choosing a “smiley/neutral/cross” face icon, whether they liked each questionnaire or not. In addition, there is no deception involved in these questionnaires, which are asking the children about their friendships, feelings and responses to others

However, the nature of this study is to examine links between differences in emotional knowledge and behavioural problems. As this is a pilot study with a normal sample, we will not be looking at any symptomatology of these children, and it is not deemed necessary to acquaint the children with the underlying aspects of this study.

REASONS FOR NOT DISCUSSING THE STUDY WITH THE PARTICIPANTS

REF:

9. Will an opportunity exist to discuss the study with the participants to
monitor any negative effects or misconceptions?

YES/NO

All participants and parents will be given information sheets prior to the study and invited to ask questions beforehand. Participants will be informed of their right to withdraw from the investigation at any time. The children will also be given a verbal opportunity at the end of the test to say what they thought of the questionnaires.

However, as no deception or manipulation of participants is involved it is not thought to be necessary or appropriate to fully discuss the study with the participants. It is not predicted that any negative effects or misconceptions will arise throughout this process.

1.2. CONSENT AND INFORMATION SHEETS

C O N F I D E N T I A L

Middlesex University

CHILD CONSENT FORM

CONSENT TO PARTICIPATE IN RESEARCH STUDY

I (name)

of (school)

agree to take part in the research project by Middlesex University.

I have been told what the Study is about and I have read the information sheet, which explains what I have to do. I have asked any questions I might have.

I understand that my name will not be made public in any way in connection with this study.

I know that at any time I can decide not to continue if I do not want to.

Signed **Date**

Witnessed by **Date**

RESEARCHER'S STATEMENT

I have explained the nature, demands and foreseeable risks of the above research to the participant.

Name **Position**

Signed by **Date**

MIDDLESEX UNIVERSITY RESEARCH STUDY**RESEARCH INFORMATION SHEET FOR CHILDREN****STUDY OF CHILDREN'S FEELINGS AND FRIENDSHIPS**

You have been asked to take part in a research study about children's feelings and friendships. It is important that you understand what the research will involve. Please take time to read this sheet carefully, and discuss it with others if you wish. If anything is not clear, or you need more information, please ask.

Why Is This Study Being Done?

We would like to know more about the feelings and friendships of children like you, and the only way to find out is to ask.

What Will I Have To Do? What Will I Be Asked About?

You will be given three sets of questions. You will be asked to put a cross in boxes under some comments like "really true" or "not true" in response. These questions will ask you about your feelings and how you see others.

How Long Will It Take To Do This? Where Will I Do It?

It should take between 20 and 30 minutes to answer the questions, and you will do it in your own school, either in your classroom or somewhere else.

What If I Change My Mind and Don't Want to Carry On?

Participation in this research is entirely voluntary. This means you do not have to take part if you don't want to. If you decide to take part you may withdraw at any time without giving a reason.

What does this mean?

It means that whatever you decide to do is okay. If you change your mind in the middle of the questions, just tell us and you can stop. It is no problem, and you wouldn't need to tell us why. However, we would like you to finish a questionnaire, as otherwise we will not be able to use the answers you have given us.

Will Anyone Else Know What I Say?

Everything you do and say will be kept anonymous and confidential - that means no one will know it is you - we will use numbers for each answer sheet and not your names. Also, the questionnaires will only be seen by the research team, and no-one else.

If you are happy to continue with this research, you will be asked to sign a 'consent form' before you start. It says that you have read this sheet and are happy to do the questionnaires.

Thank you for reading this information sheet.

*** All proposals for research using human subjects are reviewed by an Ethics Committee before they can proceed. The Middlesex Psychology Department's Ethics Committee have reviewed this proposal. ***

C O N F I D E N T I A LMiddlesex University**PARENT CONSENT FORM****PARTICIPATION OF CHILD IN RESEARCH STUDY****Name of
Parent/ Primary carer***

.....

Name of child

.....

School Address:

.....

.....

Head Teacher

.....

Class Teacher

.....

I agree that my child/ward may take part in the research project undertaken by Middlesex University on the subject of emotional intelligence and complete a questionnaire pack.

I confirm that I have read the information sheet and understand the nature of the research. My child's part in this study has been made clear and I understand that all questionnaires are completely anonymous and his/her name will not be made public in any way.

I also understand that my child may withdraw from doing the questionnaire if unwilling to continue for any reason.

Signed:**Date****Investigator's Statement**

I have provided an information sheet explaining the nature and demands of the above research to the participant and carer.

Participation in this pilot study is purely voluntary.

Name:**Signed:****Date:**

* as appropriate

Middlesex University

RESEARCH INFORMATION SHEET

CONFIDENTIAL

Study of Emotional Intelligence in Children – Questionnaire Pack

Your child is invited to participate in a new activity through which we hope to improve knowledge about children's understanding of emotions and how they handle friendship issues. The activity comprises three questionnaires that ask for children's responses to a number of statements about their feelings and their relationships with other children. It is designed for children aged seven to eleven in mainstream schooling. We do not use any names but we will need to know the children's ages and dates of birth in order to compare responses from younger and older children.

Please encourage your child to read the Children's information sheet. If you are happy that your child participates in this activity, please sign and return the consent form attached. This consent form applies only to the questionnaire pack.

The children will be given three sets of questions. They will be asked to read the questions and put a cross in box under comments like "really true" or "not true" in response. These questions will ask about their friends and feelings, how they see others, and how they express themselves with their friends. It should take between 20 and 30 minutes to answer the questions and they will do this in their own school, in the classroom, probably as part of a whole class activity.

Following this study, the questionnaires will become part of a larger project. Children for this project will be selected by the school and the researchers and their families invited to participate. We intend to compare the emotional responses of children with no difficulties in the school environment and those with behavioural difficulties. This information is important because of its usefulness to those researching behavioural problems in schools, and we hope it will help to improve the school environment for all children, including those with problems.

Participation in this study is entirely voluntary and families should not feel under any pressure to participate in the research. Your child does not have to take part and may withdraw at any time without having to give a reason. The decision whether to take part or not will not affect your family or child in any way. However, we would be very grateful if your child agrees to take part in this study, as without families like yourselves we cannot continue our research.

The research is being conducted under the direction of senior researchers. Should you have any concerns or questions about the research, please feel free to talk to your child's school or contact either member of the research team (Jackie Meredith, Researcher, or Dr. Mark Coulson, Research Supervisor) at:

Middlesex University
School of Health & Social Science
Queensway
Enfield, MIDDX. EN3 4SA

Tel: 020 8411 2646 (Jackie Meredith)

Tel: 020 8411 6290 (Dr. Coulson)

Declaration of Confidentiality:

All records for this project, whether written materials or computer records, will be kept securely. Participants will be identified by a serial number, and not their names. Where information is analysed for publication, only statistical trends will be reported, and there will be no disclosure of individual or identifiable information.

Thank you for reading this information sheet.

All proposals for research using human subjects are reviewed by an Ethics Committee before they can proceed. The Middlesex Psychology Department's Ethics Committee have reviewed this proposal

İZİN FORMU

Velinin adı:

Çocuğun adı:

Okulun adresi:

.....

Müdür:

Sınıf öğretmeni:

Çocuğumun Middlesex Üniversitesi tarafından sürdürülen bu çalışmaya katılmasını kabul ediyorum.

Araştırmacıya, çocuğumun okuluyla temas kurmasına ve çocuğumun arkadaşlıklarıyla ilgili bu çalışmaya katılmasına izin veriyorum.

Araştırmacı tarafından sunulan bilgi formunu okuduğumu ve araştırma konusunun ne olduğunu anladığımı onaylarım. Çocuğumun bu ön çalışmadaki rolü bana açıklanmıştır. Ayrıca, çocuğumun kimliğinin, hiçbir zaman ortaya koyulmayacağını da anlıyorum.

Çocuğumun katılımını bu araştırmadan herhangi bir nedenle ve zamanda geri çekme hakkına da sahip olduğumu anlıyorum.

İmza Tarih.....

Araştırmacının açıklaması

Bu araştırmanın konusunu, katılımcıdan beklentileri ve riskleri katılımcıya ve velisine açıklamak amacıyla bir bilgilendirme belgesi sağladım.

Bu ön çalışmaya katılım tamamıyla gönüllüdür.

İsim: İmza:

Tarih:

(Turkish Translation of Parent Consent Form)

Araştırma Bilgilendirme Formu

Middlesex Üniversitesi

Çocukların duyguları ve arkadaşlıkları: Yeni bir test geliştirmek için ön çalışma

Çocuğunuzu kendi duygularını ve arkadaşlıklarını anlamak amacıyla geliştirilen yeni bir teste katılmaya çağırıyoruz. Test, çocuğunuzun diğer çocuklara karşı olan duygularını ve ilişkilerini anlamak amacıyla üç bölüme ayrılan sorulardan oluşturulmuştur. Bu test ilkokulda okuyan 7-11 yaş grubu çocuklara yöneliktir. Çocuğunuzun ismini vermek gerekmiyor, ama doğum tarihi ve yaşı bu çalışma için çok önemlidir.

Çocuğunuza üç grup soru verilecektir. Bunları okuyup her sorunun altına cevabını işaretlemesi gerekir. Sorular, çocukların arkadaşlıkları hakkında duygularını, arkadaşlarını nasıl algıladıklarını ve kendilerini nasıl ifade ettiklerini belirlemek amacıyla sorulacaktır. Bu test okulda ve 20-30 dakika arasında tamamlanacaktır.

Bu ön çalışma ileride birkaç testten oluşan daha büyük bir araştırma projesinin parçası olacaktır. İkinci aşamada testlerin bazıları sorularla, bazıları bilgisayar aracılığıyla yapılacaktır. Buna katılacak çocuklar okul ve araştırmacılar tarafından seçilecektir. Ayrıca bu çocukların ailelerinin de katılmaları rica edilecektir. Bunun esas amacı okulda duygusal sorunu olmayan çocukların davranış bozukluğu olan çocuklarla karşılaştırılmasıdır. Bu bilgi, okulda davranış bozukluğu yaşayan çocukların sorunlarının anlaşılmasında ve çözülmesinde yararlı olacaktır.

Ön çalışmaya katılım tamamiyle gönüllü olup velilerin hiçbir şekilde kendilerini zorunlu hissetmemeleri gerekir. Çocuğunuzun katılımı zorunlu değildir ve herhangi bir zamanda geri çekilme hakkı vardır. Katılım kararınız ailenizi ve çocuğunuzu hiçbir şekilde etkilemez. Çocuğunuzun bu ön çalışmaya katılımı için izin vereceğinizi umar, şimdiden teşekkür ederiz. Takdir edersiniz ki sızsiz bu çalışma gerçekleşemez.

Bu proje uzman araştırmacıların direktifleri altında yapılmaktadır. Araştırmayla ilgili herhangi bir sorunuz varsa çocuğunuzun okul müdüriyetini yada Bayan Jackie Meredith'i (Araştırmacı) veya Dr. Mark Coulson'u (Araştırma Şefi) arayabilirsiniz.

Middlesex University
School of Health & Social Science
Queensway
Enfield, MIDDLESEX. EN3 4SA

Tel: 020 8411 2646 (Jackie Meredith)

Tel: 020 8411 6290 (Dr. Coulson)

Gizlilik Beyanı:

Bu araştırmadan elde edilen tüm bilgiler saklı kalacaktır. Katılımcıların şahsi kimlikleri, hiçbir zaman ortaya konulmayacaktır. Bu araştırmadan elde edilen verilerin yayınlanması durumunda yalnız istatistiksel bilgi verilecektir.

Teşekkürler.

Bu araştırma projesi Middlesex Üniversitesi etik komitesi kuralları gereğince incelenmiş ve onaylanmıştır.

(Turkish Translation of Parent Information Form)

1.3. CLASSIFICATION AND CATEGORISATION OF CHILDREN WITH SPECIAL NEEDS

The initial motivation for employing interventions and eventual categorisation as SEN requires that the child fulfils at least one of the criteria set down by the Department for Education and Skills (DfES). This will initially be a category of 'School Action', which, if unresolved, will progress to 'School Action Plus', at which point outside agencies are involved.

At the outset of this study the categorisation for Special Needs was on a five point scale, as delineated by the table below:

Stage	Action
Stage 1	Child's teacher records concern about child's learning difficulties and talks to parents and the Special Educational Needs Co-ordinator (SENCO)
Stage 2	School's SENCO assesses child's learning difficulty and together with teacher reviews the special help being made in the classroom for him/her. They also consult with parent and draw up an Individual Education Plan (IEP)
Stage 3	School looks for help or advice from outside the school – e.g. from an Educational Psychologist or specialist teacher. A further IEP is drawn up taking into account everyone's views, including parents. Child's progress discussed regularly with changes made to IEP if necessary. If it is clear the child is not making as much progress as expected, LEA asked to make a more detailed assessment. Either the parent or the Head teacher can request the LEA to carry out this assessment, which the Code of Practice calls a Statutory Assessment (sometimes referred to as a Multi-Professional Assessment)
Stage 4	LEA considers the need for an assessment and if appropriate makes one. This may lead to a Statement of Special Educational Needs
Stage 5	Child has a full Statement of Special Educational Needs which is unlikely to be revoked. Includes provision for weekly assistance with the classroom and continued assessment by all professionals involved. This Statement is automatically transferred to a receiving secondary school.

Old System for Stages of Assessment for a child with SEN. (DfES, 2001)]

Details of the classifications for Special Needs required for the 2004 Pupils Level Annual School Census (PLASC) (including children with emotional and behavioural disorders) can be found with the DfES (DfES 2003).

Disruptive Behaviour - Behavioural, Emotional and Social Difficulties

A child exhibiting disruptive behaviour in a school context may, if this is not transient and shows no signs of improving, be classified as SEBD - Social, Emotional and Behavioural Difficulties. This classification replaces EBD (Emotional Behavioural Difficulties) and reflects the fact that internal problems may manifest in profound social difficulties as well as negative behaviours. The new labelling allows a continuum of severity and full range of ability. Social Difficulty would encompass pupils who are withdrawn, quiet and difficult to communicate - with signs of low esteem, under achievement and inappropriate social interaction without behavioural outbursts.

A child classified as SEBD would be entitled to the same classification and assessment programme as children with SEN. However, the way in which an individual school may deal with disruptive behaviour may depend to some extent upon the resources and ethos of the school; therefore it is important the child enters their Local Education Authority (LEA) assessment programme in order that a standard of classification may be provided. The LEA has a duty to provide suitable education for such pupils, whether this be within the mainstream school in special units attached to the school which specialise in helping pupils with disruptive behaviour or in special units called Pupil Referral Units (PRU). Pupils whose behaviour does not improve may be temporarily or permanently excluded from school and admitted to a Special School for Behaviourally Challenged children (as were children in Study 4 of this thesis). Some of these schools are residential, providing week-long consistency in care and training.

Inclusion or exclusion for pupils with behavioural problems is a difficult area. Whereas the governmental objective is towards inclusion in a mainstream school, this is not always possible or advantageous for the child. There is still an element of confusion in some schools as to how a child with mixed problems should be handled (Wilkin, Archer, Ridley, Fletcher-Campbell and Kinder, 2005). There is also the question as to whether a pupil exhibiting behavioural difficulties should be labelled as 'SEN', or whether additional learning difficulties should be present at the time of assessment for this to be the case.

Although some schools decline to accept pupils with learning needs, behavioural difficulties make up by far the greatest reason for exclusion once the child is at school. In addition there is a high representation of exclusion figures for pupils with attention deficit hyperactivity disorder (ADHD) and autistic spectrum disorder (ASD). General reasons for fixed-term exclusion (in line with DfES guidelines) are:

- Verbal or physical abuse towards staff
- Physical abuse of other pupils
- Racial abuse
- Bullying
- Persistent lesson disruption.

All these would be persistent and entrenched problems. Incidents of exclusion after one-off incidents are very rare and generally when violent assault, use of an offensive weapon, or drugs has been involved. Permanent exclusion from a mainstream school is viewed very much as a last resort. The pupils involved in the final stage of this study were all excluded from mainstream school on the grounds of entrenched and unrelenting severe behavioural problems which involved physical or verbal abuse of staff and others and persistent disruption of lessons.

For the purposes of first three stages of this study, mainstream schools were asked to identify any special needs status of children comprising the control sample. Children with SEBD were identified as in a “Behavioural” category, and all other non-behavioural Special Educational Needs problems as “Special Needs”. These were difficulties that existed as Stage Two or above in the SENCO register at the time of testing. They are referred in the text as SEBD and SEN.

Where there was a combination of SEN and SEBD it was decided to categorise the child as SEBD for the purposes of this investigation, whilst recording SEN as a secondary category. In actuality, most of the children used in the sample registered as SEN for the purposes of the study would come under the category of SpLD. One child had a hearing impairment and this was noted. For purposes of analysis SEBD and SEN children were compared to the main control sample of typically adapted children, where there were enough in the special needs sample to do so.

1.4 NOTES FOR TEACHERS

EMOTIONAL INTELLIGENCE STUDY

NOTES FOR TEACHERS

CHILD CONSENT

Before you start, each child must fill in a Consent Form, giving their name and school and then signing it. This caused lots of interest in the pilot study with some children providing very creative signatures!

The Consent Forms can be collected in before the test starts. Please could you also ‘squiggle’ a signature on each of the forms, as a witness to the fact that the child consented to the study. This can be done afterwards by you as class teacher, or by a classroom assistant. These forms are always kept separately from the questionnaires – there is no personal association, and questionnaires remain completely anonymous. We simply need to have complied correctly with the requirements of the British Psychological Society for ethical consent – which means having the same number of child consent forms as completed questionnaires.

ADMINISTRATION

This questionnaire pack is currently being used with primary school children from Key Stage 2 onwards – Years 3 to 6. Some children may not be able to read all the material – particularly children in younger classes or with reading problems. The pilot study showed us the best way to administer the questionnaires is for the class teacher to read out the administration instructions from the laminated card (*this is important so that all the children will have the instructions*) and then continue to read out the questionnaire statements as the children fill them in.

Each questionnaire has a “scale” with a choice of 5, 7 or 9 boxes – from “agree” to “disagree”, and they are worded for the context of the statement. Please encourage children to respond each statement if they can, and if they are not sure, just to put their “cross” where they first think it should go. Although we would like completed questionnaires to best examine children’s responses, we must not put the children under pressure to do this task. In previous cases it has taken younger children approximately 35 minutes (older children about 20 minutes) to complete these questionnaires.

SAMPLE INFORMATION – CLASSIFICATION & CULTURE

We need a large sample of “normal” children’s responses as well as those from children with behavioural problems in school. This is why we are using mainstream schools for this project. As we are giving the questionnaire to a mixed group of children we need to identify children who have behavioural problems or are on the special needs register for learning difficulties so that we can analyse their group differences. As part of the ongoing study of children’s differences we would also like to know the children’s cultural backgrounds. The groups we are interested in are:

Turkish (there is a sizeable Turkish population in Enfield),
Mediterranean,
White (generally UK or other white European, Canadian, US, etc., etc.),
African-Caribbean.

Although this may seem a politically sensitive area, we have been asked to see whether children from different cultural groups have different ways of looking at emotions, so that we can help them if it proves to be the case. Turkish researchers at Middlesex are very interested in cultural differences in this group, and have suggested that there may be differences in the way they perceive emotion, particularly appropriate emotion, in self and others.

At the base of the orange cover sheets, outside the dotted area, there is an empty thick-lined grey box. **AS YOU COLLECT IN EACH QUESTIONNAIRE** after the test, please could you mark the grey box on the orange cover sheets with the two letters, one for classification and one for culture, as follows:

N – normal sample

B – behavioural difficulties – Stage 2 or above (*including SEN with behavioural problems*)

S – special educational needs

AND:

W – White

T – Turkish

M - Mediterranean

A – African-Caribbean

O – Other (any child who does not fit the above categories)

E.G:

BW

 = behavioural problems, White

NT

 = normal sample, Turkish.

Thank you very much for helping with this research

1.5. STANDARDISED INSTRUCTIONS

CLASS ADMINISTRATION INSTRUCTIONS QUESTIONNAIRE PACK

- We would like you to complete three short questionnaires. On them you will find some sentences.
- We want you to show, by ticking boxes, if a sentence fits you or not.
- These sentences are about how you might feel about different situations. There are no right or wrong answers; you just show how much they describe how *you* think.
- No one but the researcher will see your answers to these sentences - even your parents won't see them - and not even the researcher will know who you are.
- Remember, this is not a test, so you can relax.
- There are no right or wrong answers - everyone will have different answers. That is okay.
- We are just interested in how boys & girls of your age feel about these things.

On the front of your papers you will see an orange sheet.

There is a piece in the middle, with a dotted line around it, for you to fill in. It has a picture of a hand writing. Can you see it?

This is important so that we know your age and if you are a boy or a girl.

Can you fill this in now, please, as much as you can. If you can't remember your birthday, just do your best.



- Underneath the orange sheet, there are 3 questionnaires to fill in.
- Let's look at the first white sheet - "**My Feelings**".
- Look at the example at the top of your first paper: "I like to eat chocolate." Can you find this example?
- Under the sentence "I like to eat chocolate" are the words:
"Most of the Time" "Often" "Sometimes" "Not Often" "Almost Never".
- If you like to eat chocolate *MOST OF THE TIME*, then you would put a cross in the box under "Most of the Time" - as you can see in the example.
- If you like to eat chocolate often, but not *as* much as "most of the time" put your mark in the "Often" box, like it shows in the example. Can you see this?
- The sentences are called "statements".
- Put a cross in the box under each statement that fits how you things are for you.
- Work down the pages until you've put a cross in one box for each line. Then put a cross in the box under the face that best represents how you felt about the questionnaire.
- When you have finished the first questionnaire, move on to the next.
- Have a look at the example at the top of each questionnaire - it explains how to put a cross in the box that shows how you feel.
- In the next questionnaires you will see lots of boxes, and a comment at each end - like "very strongly agree" on the left and "very strongly disagree" on the right. If you *really* agree with the sentence, put a cross in the box out on the left. If you *don't* agree *at all*, put your cross on the other side of the paper. If you think the sentence is true *sometimes*, but not all the time, put your cross in between where it describes what you think.
- When you have finished each questionnaire, move on to the next.
- Now you are ready to start. Do you have any questions?

- Remember, if you are not sure about anything, you can ask. If you need help, that is okay.



Please note the original covered 2 sheets and was laminated for teacher use.

The administration instructions below were provided by Bryant for administration to 5 year olds who received a simple yes/no alternative. Instructions for older (7 to 12 year old) children were similar but incorporated instruction for a Likert scale response.

BRYANT ADMINISTRATION INSTRUCTIONS

I'm going to read to you some statements that may or may not describe you. I want you to let me know if a statement describes you or not. These statements are about how you would think and feel in many different situations. There are no right or wrong answers, just let me know which statements describe you. No one but myself will see your answers to these statements; your parents won't see them, only me. Remember, this is not a test, so you can relax. Since there are no right or wrong answers, everyone will have different answers. That is O.K. I am just interested in how (boys/girls) your age feel about these things.

I will read you a statement, and I would like you to let me know how you think or feel by circling either "yes" or "no," whichever describes how you would feel about the statement. For example, look at example A at the top of your paper. "I like to eat Spinach." Are you able to find this example? Next to the statement "I like to eat spinach" are the words "Yes" and "no." I would like you to circle the word which best describes how you would feel about eating spinach. Some people like to eat spinach, so they would circle "yes" and some people don't like to eat spinach and they would circle "no". Either answer is O.K. to make depending on how you feel about spinach. Do you understand how you would let me know what you think: Let's try another example. Here is example B, "I don't like ice cream." Circle "Yes" if this statement describes you, and circle "No" if this statement does not describe you. O.K.? Let's try the next statement...

What follows are the sheets which comprised the Questionnaire Pack. The originals of these had different margins and fitted the pages neatly.

1.6. QUESTIONNAIRE PACK



University of Middlesex
School of Health and Social Sciences
Queensway

DATE:

NUMBER:

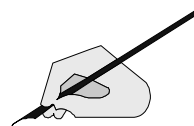
SCHOOL:

RESEARCH ID:

FRIENDSHIPS QUESTIONNAIRE PACK

Middlesex University is working with your school to understand more about children's friendships and feelings. We do need to know a few details about you for our research, and it would help if you could fill this sheet in before answering the questions. All information given will be completely anonymous and you are not asked to give your name.

My age at last Birthday:



This section (inside the dotted line) is for

I was born on:

Day: Month: Year:

My Year at school is:

My class is:

I am a : Boy

☐


Girl

☐


(Please tick the correct box)

Part 1: My Feelings



Here is a series of statements about friends and feelings. There are no right or wrong answers, just put a tick in the box under the comment that best fits how things are for you.



Let's have a go with an example:

I like to eat chocolate.

Most of the Time

☐

Often

☐

Sometimes

☐

Not Often

☐

Almost Never

☐

If you like to eat chocolate most of the time, you would put your mark in the box under "most of the time" - like this:

Most of the Time


☐

Often

☐

Sometimes

☐

Not Often

☐

Almost Never

☐

If you like to eat chocolate often, but not as much as "most of the time" put your mark in the "Often" box, like this:

Most of the Time

☐

Often


☐

Sometimes

☐

Not Often

☐

Almost Never

☐

It's easy! Don't forget you can only choose one answer for each statement.

Now have a go with the statements about feelings:

1. When I'm feeling fed up my friends do things to cheer me up.

Most of the Time

☐

Often

☐

Sometimes

☐

Not Often

☐

Almost Never

☐

2. If I am playing and a friend looks angry, I can tell if they are being serious or playing too.

Most of the Time

☐

Often

☐

Sometimes

☐

Not Often

☐

Almost Never

☐

3. I can tell if a good friend is happy or unhappy.

Most of the time

☐

Often

☐

Sometimes

☐

Not often

☐

Almost never

☐

4. I know when someone is cross with me by looking at them.

Most of the Time	Often	Sometimes	Not Often	Almost Never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. When I feel bad, I don't know who or what is upsetting me.

Most of the time	Often	Sometimes	Not often	Almost never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. I know which of my friends are better at pretending than I am.

Really true	Often true	Not Sure	Not really true	Untrue
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. I can tell whether music is supposed to be happy, sad or angry.

Most of the Time	Often	Sometimes	Not often	Almost Never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. I don't often know when someone is about to cry.

Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. If I'm talking to someone and they don't understand I can tell by the look on their face.

Most of the Time	Often	Sometimes	Not Often	Almost Never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. When someone tells me something I can tell if they are lying or telling the truth.

Really true	True	Not Sure	Not really true	Untrue
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. I can tell if someone is angry by the sound of their voice.

Very true	Often true	Sometimes true	Mostly Not True	Not True at All
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. When someone smiles I know if they really feel happy.

Most of the Time	Often	Sometimes	Not Often	Almost Never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. If someone falls over, I can tell by their face if they are really hurt.

Most of the Time	Often	Sometimes	Not Often	Almost Never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. I can tell if other kids want to play with me.

Most of the Time☐**Often**☐**Sometimes**☐**Not Often**☐**Almost Never**☐**15. If I'm telling a story I can tell if someone else is bored.****Most of the Time**☐**Often**☐**Sometimes**☐**Not Often**☐**Almost Never**☐**16. When a grown-up tells me off for being naughty I can tell if they are really angry with me.****Most of the Time**☐**Often**☐**Sometimes**☐**Not Often**☐**Almost Never**☐**17. When I am upset I know how I am feeling inside.****Most of the Time**☐**Often**☐**Sometimes**☐**Not Often**☐**Almost Never**☐**18. I can tell when other children are unfriendly or just shy.****Most of the Time**☐**Often**☐**Sometimes**☐**Not Often**☐**Almost Never**☐**19. I'm pretty good at knowing what I'm feeling.****Really True**☐**True**☐**Not Sure**☐**Not Really True**☐**Untrue**☐

Thank you for doing this questionnaire.

Now choose the face that represents what you thought of it!

LIKED IT

☐

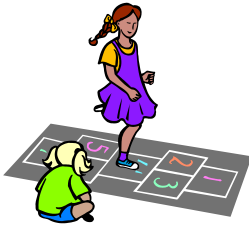
NOT SURE

☐

DIDN'T LIKE IT

☐

Part 2: Looking at Others



Here is a series of statements about how you see others. Under each you will see nine boxes with "Very strongly agree" at one end, and "Very strongly disagree" at the other. All you have to do is decide whether you agree or disagree, and by how much. There are no right or wrong answers; just what best fits how you see things.



Let's have a go with our chocolate example:

I like eating chocolate.

Very strongly agree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Very strongly disagree

If you REALLY LOVE eating chocolate, you would put your cross in the box on the far left, like this

Very strongly agree

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Very strongly disagree

If you really hate eating chocolate, put your cross right at the "very strongly disagree" end - if you're not sure, put it somewhere in the middle. If you like chocolate, but don't *really* love eating it, then your mark would be somewhere on the agree side!

Now here are your statements:

1. It makes me sad to see a girl who can't find anyone to play with.

Very strongly agree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Very strongly disagree

2. People who kiss and hug in public are silly.

Very strongly agree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Very strongly disagree

3. I really like to watch people open presents, even when I don't get a present myself.

Very strongly agree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Very strongly disagree

4. Boys who cry because they are happy are silly.

Very strongly agree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Very strongly disagree

5. Even when I don't know why someone is laughing, I laugh too.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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6. Seeing a boy who is crying makes me feel like crying.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

7. I get upset when I see a girl getting hurt.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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8. Girls who cry when they are happy are silly.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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9. Sometimes I cry when I watch TV.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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10. It's hard for me to see why someone else gets upset.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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11. I get upset when I see an animal getting hurt.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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12. It makes me sad to see a boy who can't find anyone to play with.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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13. Some songs make me feel so sad I feel like crying.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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14. I get upset when I see a boy being hurt.

Very strongly agree

Very strongly disagree

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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15. Grown-ups sometimes cry even when they have nothing to be sad about.

Very strongly agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Very strongly disagree

16. It's silly to treat dogs and cats as if they had feelings like people.

Very strongly agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Very strongly disagree

17. I get mad when I see a classmate pretending to need help from the teacher all the time.

Very strongly agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Very strongly disagree

18. Kids who have no friends probably don't want any.

Very strongly agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Very strongly disagree

19. Seeing a girl who is crying makes me feel like crying.

Very strongly agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Very strongly disagree

20. I am able to eat all my crisps even when I see someone looking at me wanting one.

Very strongly agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Very strongly disagree

21. I think it is funny that some people cry during a sad movie or while reading a sad book.

Very strongly agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Very strongly disagree

22. I don't feel upset when I see a classmate being punished by a teacher for not obeying school rules.

Very strongly agree

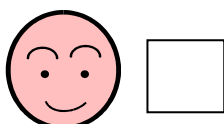
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Very strongly disagree

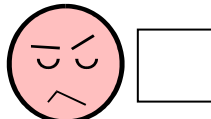
Thank you for doing this questionnaire.

Now choose the face that represents what you thought of it!

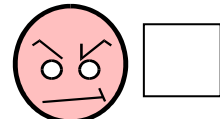
LIKED IT



NOT SURE



DIDN'T LIKE IT



Part 3: Me and my friends



Here is a series of statements about how you are with your friends. Under each you will see seven boxes with "All the time" at one end, and "Never" at the other. All you have to do is decide whether you think this is true for you with your friends or not. There are no right or wrong answers; just what best fits how you things are for you.



Let's have a go with our chocolate example:

I eat chocolate.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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If you eat chocolate all the time, you would put your cross in the box on the far left, like this:

All the time

Never

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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If you *never* eat chocolate, put your cross in the "never" - if you're not sure, put your cross somewhere in the middle. If you like to eat chocolate, but not *all* the time, then your cross would be somewhere on that side.

Now here are your statements:

1. I tell people I love them.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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2. I touch friends when we are talking.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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3. Just thinking about something funny can make me laugh out loud.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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4. I show that I like someone by hugging them.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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5. When I am angry my friends can tell.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

6. My laugh is really loud.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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7. I cry at sad films.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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8. If someone makes me angry I try to hide it.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

9. People can tell from my face what I'm feeling.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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10. I laugh at lots of things.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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11. When I'm given a present I get really excited.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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12. If someone shows me up I get angry and shout.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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13. If I've done something wrong I say sorry.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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14. I don't know what to do when someone does something nice for me.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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15. When I like someone they know it.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

16. I laugh so loud that my eyes water.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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17. If I think really sad thoughts I end up crying.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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18. If I really like something I tell everyone.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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19. My friends think I'm fun to be with.

All the time

Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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20. I cheer loudly when my team is winning at sports day.

All the time

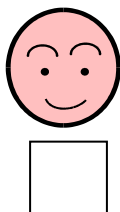
Never

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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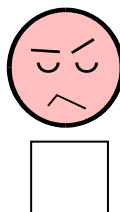
Thank you for doing this questionnaire.

Now choose the face that represents what you thought of it!

LIKED IT



NOT SURE



DIDN'T LIKE IT



1.7. EEQ SELF-RESPONSE QUESTIONNAIRE – KING 1970

This questionnaire is concerned with the degree to which you feel you are able to express various different emotions. Please read each question carefully and then **circle around a number for each item on the table** to show your answer. Please reply to all the items.

Items	<u>Strongly Disagree</u> <u>Strongly Agree</u>						
1. I often tell people I love them	1	2	3	4	5	6	7
2. I show that I like someone by hugging or touching that person	1	2	3	4	5	6	7
3. I often touch friends during conversations	1	2	3	4	5	6	7
4. Watching television or reading a book can make me laugh out loud	1	2	3	4	5	6	7
5. I laugh a lot	1	2	3	4	5	6	7
6. When I am angry people around me usually know	1	2	3	4	5	6	7
7. People can tell from my facial expressions how I am feeling	1	2	3	4	5	6	7
8. Whenever people do nice things for me, I feel “put on the spot” and have trouble expressing my gratitude	1	2	3	4	5	6	7
9. When I really like someone they know it	1	2	3	4	5	6	7
10. I often laugh so hard that my eyes water or my sides ache	1	2	3	4	5	6	7
11. When I am alone, I can make myself laugh by remembering something from the past	1	2	3	4	5	6	7
12. My laugh is soft and subdued	1	2	3	4	5	6	7
13. If a friend is surprising me with a gift, I wouldn't know how to react	1	2	3	4	5	6	7
14. I apologise when I have done something wrong	1	2	3	4	5	6	7
15. If someone makes me angry in a public place, I will “cause a scene”	1	2	3	4	5	6	7
16. I always express disappointment when things don't go as I'd like them to	1	2	3	4	5	6	7

KING AND EMMONS 1990 EEQ FACTOR LOADING

Factor loadings for King & Emmons 1990 Emotional Expressiveness Questionnaire taken from King & Emmons' original article (King 1990).

Item	Factor 1 (Positive)	Factor 2 (Intimacy)	Factor 3 (Negative)
9. Watching television or reading a book can make me laugh out loud.	.72	.10	.07
3. When I am alone, I can make myself laugh by remembering something from the past.	.67	-.01	-.05
11. I often laugh so hard that my eyes water or my sides ache.	.58	.06	-.02
4. I laugh a lot.	.50	.24	.02
16. I show that I like someone by hugging or touching that person.	.49	.35	.29
3. I often touch friends during conversations.	.42	.39	.19
15. My laugh is soft and subdued. (-)	.30	.05	.20
6. Whenever people do nice things for me, I feel "put on the spot" and have trouble expressing my gratitude. (-)	.07	.74	-.05
12. If a friend surprised me with a gift, I wouldn't know how to react.	.02	.67	-.08
1. I often tell people that I love them.	.20	.49	.41
7. When I really like someone they know it.	.24	.47	.33
8. I apologize when I have done something wrong.	.19	.24	.13
2. When I am angry people around me usually know.	.07	.12	.67
5. People can tell from my facial expressions how I am feeling.	.12	.15	.51
14. I always express disappointment when things don't go as I'd like them to.	.00	-.06	.50
10. If someone makes me angry in a public place, I will "cause a scene"	-.03	.01	.50

1.8. STANDARDISING FUTURE SCORES USING NORMS FROM STUDY 1.

Raw mean scores for children on the three questionnaires does not inform as to whether that child is functioning as well as their peers or whether one group of children is performing as well as another. In order to make statistical comparison, scores must be standardised, or normalised, using information gained from the typically developing sample. In order to convert a child's raw scores into standardised scores, z and T score formulas must be applied to percentage scores (based on number of questions answered) for key components and factors, where $T = (z \text{ score} \times 10) + 50$ (Ravid, 2005). The table for conversion of raw scores (regardless of sex) in Study 1 is seen below:

EMOTIONAL COMPETENCY PERCENTAGE SCORES	TD Statistics Males and Females combined (n=204)	
	Mean	SD
APT-C	77.42	8.65
Interpersonal Perception	79.10	9.78
Intrapersonal Perception	83.25	17.18
IECA-R	60.53	10.60
Affective Empathy	58.64	14.90
Cognitive Empathy	66.36	16.25
EEQ-C	67.03	10.38
Intimate Expression	46.55	15.10
Overt Expression	58.95	9.23
Covert Expression	41.24	10.84

Means and Standard Deviations for TD children

It is recommended that future children's scores on the questionnaire pack be converted into T scores for analysis using percentage scores from a typically developing population rather than mean scores, where differences in the length of scales become a problem. Because sex differences have been found in the Standardisation study between males and females for Empathy and for Expressivity, separate means and standard deviations should ideally be used for calculating the T scores of males and females. When scores are standardised (normalised) the mean becomes 50. Where a score is

within one standard deviation of the mean a child is most likely scoring within the normal range.

EMOTIONAL COMPETENCY PERCENTAGE SCORES	Male Statistics (n=105)		Female Statistics (n=98)	
	Mean	SD	Mean	SD
APT	77.65	8.66	77.14	8.72
Interpersonal Perception	79.23	9.62	78.89	10.03
Intrapersonal Perception	83.81	16.66	82.58	17.87
IECA-R	57.65	10.53	63.47	9.78
Affective Empathy	54.60	14.08	62.98	14.67
Cognitive Empathy	64.45	16.87	68.23	15.34
EEQ-C	65.02	9.92	69.21	10.46
Intimate Expression	43.22	14.80	50.15	14.65
Overt Expression	58.31	8.81	59.63	9.67
Covert Expression	38.37	9.97	44.34	10.93

Means and Standard Deviations of TD children showing gender groups

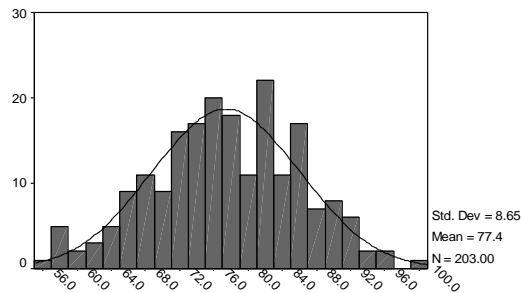
1.9. SPREAD OF SCORES FOR EMOTIONAL COMPETENCE

Histograms showing spread of raw scores

Emotional Perception

Percentage Scores - Normal Sample

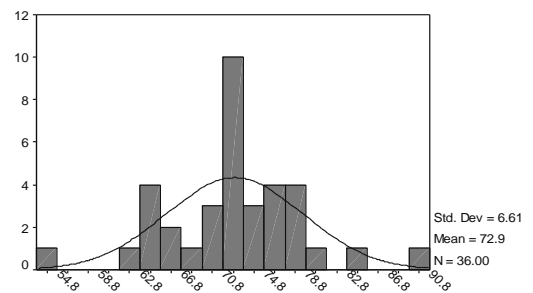
First Two Schools



Emotional Perception

Percentage Scores - SEN Sample

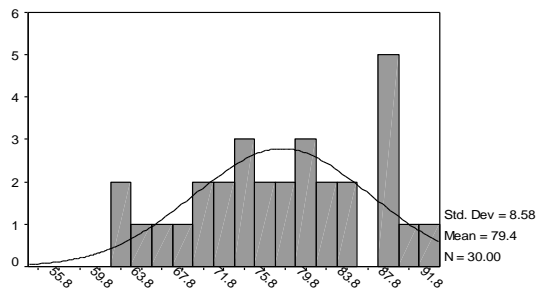
First Two Schools



Emotional Perception

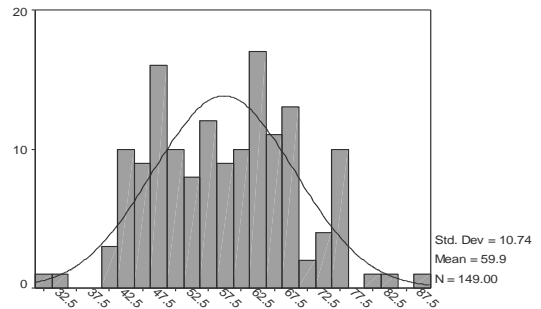
Percentage Scores - Behavioural Sample

First Two Schools



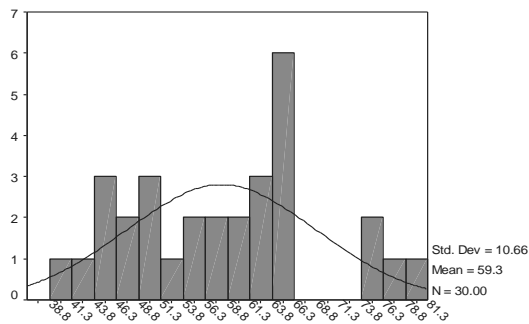
Empathy

Percentage Scores for Normal Sample



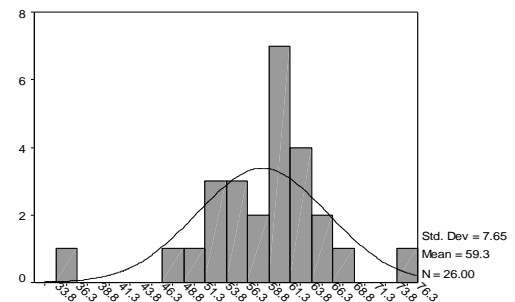
Empathy

Percentage Scores for SEN Sample



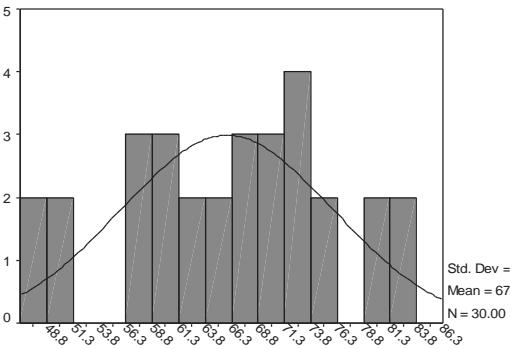
Empathy

Percentage Scores for Behavioural Sample



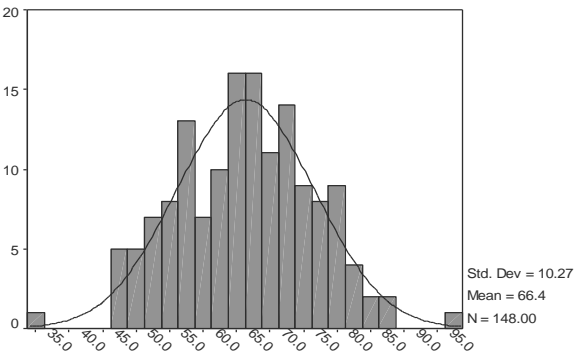
Emotional Expression

Percentage Scores for SEN Sample



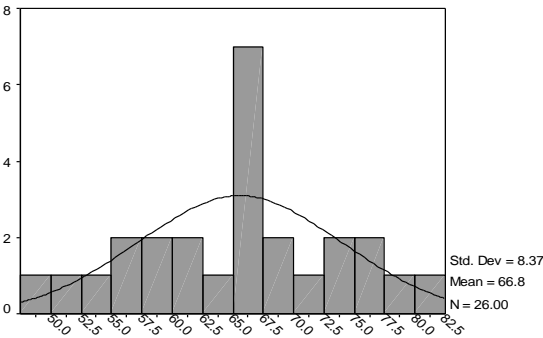
Emotional Expression

Percentage Scores for Normal Sample



Emotional Expression

Percentage Scores for Behavioural Sample



1.10 INFERENTIAL ANALYSES – STUDY 1

Items in this appendix are included to complement the results section. Where any significant findings are reported the tables and graphs to confirm these are included.

Affective Perception Analyses

GROUP CATEGORIES		Mean Percentage (Raw) Scores	Mean T (Standardised) Scores
Status	Typically Developing	77.42	50.00
	SEN	72.90	44.77
	SEBD	79.44	52.31
School Year	3	72.48	44.29
	4	79.60	52.51
	5	77.21	49.75
	6	78.43	51.18
Culture	White	76.85	49.34
	Turkish	77.68	50.31
	Afro-Caribbean	76.09	48.47
	Other (incl Mediterranean)	78.09	50.77
Sex	Male	77.07	49.60
	Female	76.99	49.50

Status Group Differences

Status Group		Mean Difference	Sig
TD	SEN	5.2316	.008
	SEBD	-2.3102	.444
SEN	TD	5.2316	.008
	SEBD	7.5418	.005

Year Group Differences:

Child's Year Group		Mean Difference	Sig
3	4	-8.2197	.000
	5	-5.4627	.005
	6	-6.8954	.000
4	5	2.7570	.324
	6	1.3243	.844
5	6	-1.4327	.807

PERCEPTION FACTORS:

FACTOR	Status	Mean	Std. Deviation	Mean Z Score	Mean T Score
Interpersonal Perception - Factor 1 of 2	TD	3.96	.49	1.17	50.00
	SEN	3.72	.40	-0.47	45.29
	SEBD	4.10	.55	0.28	52.85
Intrapersonal Perception - Factor 2 of 2 - 2 items only	TD	3.90	.76	-0.00	50.00
	SEN	4.07	.82	-0.11	48.91
	SEBD	4.40	.65	0.28	52.75

FACTOR	Status		Mean Difference	Sig
Interpersonal Perception - Factor 1 of 2	TD	SEN	.2310	.023
		SEBD	-.1404	.302
	SEN	SEBD	-.3713	.006
Intrapersonal Perception - Factor 2 of 2	TD	SEN	.0093	.810
		SEBD	-.2374	.312
	SEN	SEBD	-.3306	.244

Year at School

ANOVA	Year Group	N	Mean	Std Deviation	F (df 3, 265)	Sig
Interpersonal	3	62	45.4349	9.8485	7.162	.000
	4	67	53.0575	9.4531		
	5	69	48.8859	9.9630		
	6	71	50.9962	9.7797		
Intrapersonal	3	62	46.1277	11.1979	4.964	.002
	4	67	51.1385	9.6290		
	5	69	51.9781	8.3297		
	6	71	50.9673	8.8455		

FACTOR	Year Group		Mean Difference	Sig
Interpersonal Perception - Factor 1 of 2	3	4	-7.6226	.000
		5	-3.4511	.181
		6	-5.5613	.006
	4	5	4.1715	.061
		6	2.0612	.602
	5	6	-2.1103	.577
Intrapersonal Perception - Factor 2 of 2	3	4	-5.0108	.015
		5	-5.8504	.002
		6	-4.8395	.018
	4	5	-0.8396	.956
		6	0.1713	1.00
	5	6	1.0108	.923

Empathy Analyses

GROUP CATEGORIES		Mean Percentage (Raw) Scores	Mean T (standardised) Scores
Status	Typically Developing	59.87	50.00
	SEN	59.33	49.03
	Behavioural	59.26	48.81
School Year	3	57.19	47.41
	4	59.98	49.09
	5	58.63	50.16
	6	62.78	51.96
Ethnicity	White	59.55	49.92
	Turkish	58.65	48.05
	Afro-Caribbean	57.52	47.16
	Other (incl Mediterranean)	63.07	52.40
Sex	Male	57.47	47.12
	Female	63.63	52.92

Gender differences only found.

GENDER	N	Mean	Std Deviation
Male	147	47.1167	9.4061
Female	121	52.9212	9.1511
TOTAL	268	49.7374	9.7156

ANOVA	F (df 1, 266)	Sig
Empathy T Score	25.900	.000

Empathy factors:

FACTOR	Status	Mean	Std. Deviation	Mean Z Score	Mean T Score
Affective Empathy - Factor 1 of 2	TD	5.28	1.34	-3.42	50.00
	SEN	5.24	1.80	-0.03	49.72
	SEBD	4.99	1.42	-0.21	47.88
Cognitive Empathy – Factor 2 of 2	TD	5.97	1.00	-4.38	50.00
	SEN	5.61	1.35	-0.25	47.52
	SEBD	6.03	1.01	0.04	50.41

Gender:

FACTOR	GENDER	N	Mean	Std Deviation
Affective Empathy	Male	147	46.8018	10.1866
	Female	121	53.2625	9.9962
Cognitive Empathy	Male	147	48.5972	9.8065
	Female	121	51.0371	9.2756

ANOVA	df		F (df 1, 266)	Sig
	Between	Within		
Affective Empathy	1	266	27.151	.000
Cognitive Empathy	1	266	4.314	.039

Year at School:

FACTOR	YEAR GROUP	N	Mean	Std Deviation
Affective Empathy	3	62	49.2273	11.6755
	4	67	50.5346	11.0242
	5	69	48.9682	10.3335
	6	71	50.1442	9.4167
Cognitive Empathy	3	62	45.9548	8.9250
	4	67	47.0140	9.1982
	5	69	51.5544	9.8377
	6	71	53.7534	8.4466

ANOVA	df		F	Sig
	Between	Within		
Affective Empathy	3	265	.327	.806
Cognitive Empathy	3	265	11.060	.000

Effects of gender of stimulus (In-group/out-group differences):

N=269	Mean	Std Deviation
Empathy – Boy items	5.1072	1.6690
Empathy – Girl items	5.4755	1.9190

	GENDER	N	Mean	Std Deviation
Empathy – Boy items	Male	147	5.1485	1.6603
	Female	121	5.0496	1.6898
Empathy – Girl items	Male	147	4.8793	1.9562
	Female	121	6.2101	1.6052

GENDER OF PARTICIPANT	F (df 1, 266)	Sig
Empathy – Boy items	.232	.630
Empathy – Girl items	36.026	.000

Emotional Expression Analyses

GROUP CATEGORIES		Mean Percentage (Raw) Scores	Mean T (standardised) Scores
Status	Typically Developing	67.21	50.00
	SEN	66.01	50.46
	SEBD	67.14	49.78
School Year	3	67.68	50.62
	4	65.75	48.77
	5	66.40	49.40
	6	68.43	51.34
Culture	White	67.21	50.18
	Turkish	66.01	49.01
	Afro-Caribbean	67.14	50.11
	Other (includes Mediterranean)	67.18	50.14
Sex	Male	65.22	48.26
	Female	69.48	52.36

T scores: Status groups

STATUS	F (df 2, 265)	Sig
Emotional Expression	.047	.954
ETHNICITY	F (df 3, 264)	Sig
Emotional Expression	.117	.950
YEAR AT SCHOOL	Chi-Square (df 3)	Sig
Emotional Expression	2.994	.73

Gender:

GENDER	N	Mean	Std Deviation
Male	147	48.2550	9.3070
Female	120	52.3574	9.5283

GENDER	F (df 1, 265)	Sig
Emotional Expression	12.565	.000

Expression Factors:

FACTOR	Status	Mean	Std. Deviation	Mean Z Score	Mean T Score
Intimate Expression - Factor 1 of 3	TD	3.96	1.29	-6.64	50.00
	SEN	4.22	1.20	0.20	52.03
	SEBD	3.82	1.02	-0.10	48.97
Overt Expression – Factor 2 of 3	TD	5.31	0.83	-2.08	50.00
	SEN	5.22	0.90	-0.10	49.02
	SEBD	5.24	0.75	-0.07	49.27
Covert Expression – Factor 3 of 3	TD	4.20	1.23	-6.64	50.00
	SEN	3.86	1.52	0.21	47.23
	SEBD	4.63	1.15	-0.10	53.56

STATUS GROUPS	F (df 2, 265)	Sig
Intimate Expression	.920	.400
Overt Expression	.191	.827
Covert Expression	3.102	.047
COVERT: SEN vs. SEBD	Mean Diff -6.3353	.034

Gender

T Scores – Gender	Gender	Mean	Std. Deviation
Intimate Expression	Male	47.3708	9.1959
	Female	54.6777	9.1341
Overt Expression	Male	49.1169	9.8399
	Female	50.7565	10.0423
Covert Expression	Male	52.5350	10.5336
	Female	46.8719	9.3120

GENDER	F (df 1, 265)	Sig
Intimate Expression	31.264	.000
Overt Expression	1.891	.181
Covert Expression	21.174	.000

Ethnicity:

Ethnicity	F (df 2, 264)	Sig
Intimate Expression	.391	.760
Overt Expression	.589	.623
Covert Expression	.568	.637

Year at School:

T Scores – Year at School	YEAR	N	Mean	Std. Deviation
Intimate Expression	3	62	52.1102	11.0552
	4	67	48.7444	10.1042
	5	68	48.9373	9.5765
	6	71	50.9504	7.7647
Overt Expression	3	62	48.7932	11.1635
	4	67	49.3203	10.0741
	5	68	49.3913	9.7024
	6	71	51.4734	9.0556
Covert Expression	3	62	45.8023	12.1226
	4	67	49.7469	9.5801
	5	68	51.5067	9.2854
	6	71	52.5613	9.4254

WILCOXON	Covert vs Intimate
Z	-1.388
Sig (2 tailed)	.165

Year at school	F (df 3, 264)	Sig
Intimate Expression	1.849	.139
Overt Expression	.963	.411
Covert Expression	5.592	.001
COVERT:	Mean Diff	Sig
Year 3 vs Year 5	-5.7043	.007
Year 3 vs Year 6	-6.7589	.001

Factors – within groups

TD:

WILCOXON	Covert vs Intimate	Overt vs Intimate	Covert vs Overt
Z	-.335	-.391	-.228
Sig (2 tailed)	.738	.696	.820

SEN:

SEN	Paired Differences		t (df 25)	Sig
	Mean	Std Deviation		
Intimate Expression	3.0009	10.9507	1.644	.109
Overt Expression	4.7970	19.2900	1.492	.145
Covert Expression	1.7961	19.5170	.552	.584

SEBD:

SEBD	Paired Differences		t (df 29)	Sig
	Mean	Std Deviation		
Intimate Expression	-.2987	9.5177	-.172	.865
Overt Expression	-4.5953	15.7125	-1.602	.120
Covert Expression	-4.2966	14.6846	-1.603	.120

GENDER:

GENDER	Factor	N	Mean	Std. Deviation
Males	Intimate	147	47.3708	9.1959
	Covert	147	52.5350	10.5336
	Overt	147	49.1169	9.8399
Females	Intimate	120	53.6777	9.1341
	Covert	120	46.8719	9.3120
	Overt	120	50.7565	10.0423

WILCOXON	Covert vs Intimate
Z	-1.697
Sig (2 tailed)	.090

WILCOXON		Overt vs Intimate	Covert vs Intimate	Covert vs Overt
Males	Z	-2.460	-3.684	-2.616
	Sig (2 tailed)	.014	.000	.009
Females	Z	-2.726	-4.191	-2.794
	Sig (2 tailed)	.006	.000	.005

ANGER ITEMS and STATUS GROUPS:

ITEM	STATUS GROUP	N	Mean	Std. Deviation
EEQ5	TD	201	5.36	1.62
	SEN	36	4.94	1.77
	SEBD	29	6.10	1.45
EEQ12	TD	200	4.35	1.99
	SEN	36	4.44	1.99
	SEBD	30	5.60	1.63

Anger Items	Levene		F (df2, 263)	Sig
	Statistic	Sig		
EEQ5	2.093	.125	4.207	.016
EEQ12	2.098	.125	5.371	.005

Item	Status Groups	Mean Diff	Sig
EEQ5	SEBD vs SEN	1.16	.012
EEQ12	SEBD vs SEN	1.16	.044
	SEBD vs TD	1.25	.003

INVESTIGATION OF EMOTIONAL COMPETENCE

Correlations

		Emotional Competency Score	GENDER	CULTURE	TESTAGE	APT-C Score	IECA-R Score	EEQ-C Score
Pearson Correlation	Emotional Competency Score	1.000	.242	.011	.162	.533	.739	.745
	GENDER	.242	1.000	.063	-.068	-.028	.282	.202
	CULTURE	.011	.063	1.000	.030	.017	-.008	.006
	TESTAGE	.162	-.068	.030	1.000	.189	.138	.014
	APT-C Score	.533	-.028	.017	.189	1.000	.084	.116
	IECA-R Score	.739	.282	-.008	.138	.084	1.000	.342
	EEQ-C Score	.745	.202	.006	.014	.116	.342	1.000
Sig. (1-tailed)	Emotional Competency Score	.	.000	.438	.010	.000	.000	.000
	GENDER	.000	.	.187	.167	.346	.000	.002
	CULTURE	.438	.187	.	.336	.404	.456	.468
	TESTAGE	.010	.167	.336	.	.003	.024	.422
	APT-C Score	.000	.346	.404	.003	.	.117	.050
	IECA-R Score	.000	.000	.456	.024	.117	.	.000
	EEQ-C Score	.000	.002	.468	.422	.050	.000	.
N	Emotional Competency Score	203	203	203	203	203	203	202
	GENDER	203	203	203	203	203	203	202
	CULTURE	203	203	203	203	203	203	202
	TESTAGE	203	203	203	203	203	203	202
	APT-C Score	203	203	203	203	203	203	202
	IECA-R Score	203	203	203	203	203	203	202
	EEQ-C Score	202	202	202	202	202	202	202

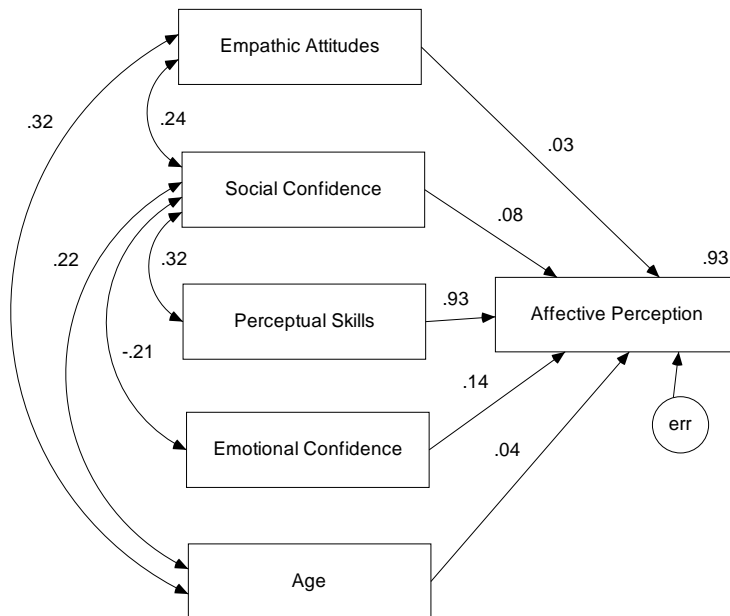
Regression of Questionnaires

1.11 SEM ANALYSES – STUDY 1

Strictly Confirmatory Path Analyses of Key Competences

AFFECTIVE PERCEPTION

Linear regression proposed a predictive relationship between AP and four component skills: Perceptual Skills and Social Confidence, Empathic Attitudes and Emotional Confidence and Age ($p < 0.01$ in all cases). The chi-square value of 7.970 with 5 degrees of freedom was non-significant at the .05 level with a p-value of .158, suggesting the model fit the data acceptably (below).

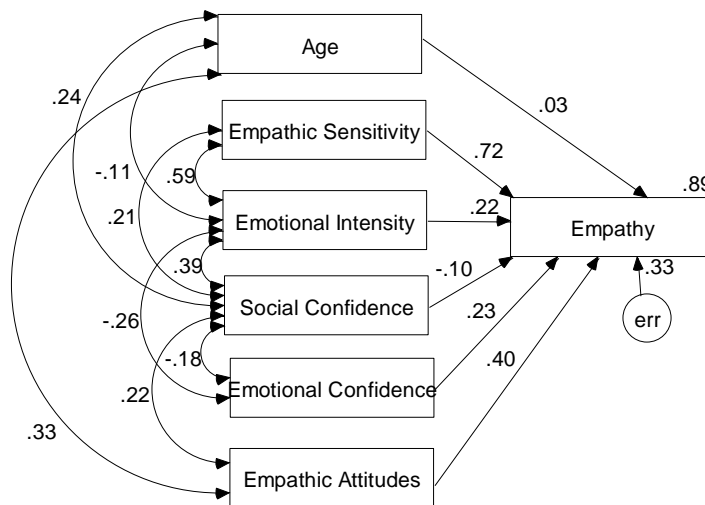


Path Diagram of Affective Perception showing Standardised Estimates

The RMSEA fit statistic of 0.054 indicated a moderate to high fit and the TLI result of .986 was acceptable, indicating the model should be retained. The squared multiple correlation for this model was .935, showing that the independent variables explain over 90% of the variation in the model and suggesting a strong causal link with Perceptual Skills (and to some extent Emotional Confidence) and AP. Other Affective Skills have only weak causal links with Affective AP but show strong covariances within the model. Social Confidence shows a strong covariance with Perceptual Skills. Social Confidence shows covariance with each of the other three Affective Skills, including negatively with Emotional Confidence. Empathic Attitudes and Social Confidence are, as before, positively moderated by Age.

EMPATHY

Linear regression proposed a predictive relationship between EM and scores in the EC factors of Empathic Sensitivity, Emotional Intensity, Empathic Attitudes and Social Confidence ($p < 0.01$) and Emotional Confidence ($p < 0.05$). Sex and Age were included in the model as there is evidence from previous research of sex differences in Empathy and the model of EC had shown covariance between Age and Empathic Attitudes. The most acceptable model using structural equation modelling showed a primary association between EM and the EC factors of Empathic Sensitivity, Empathic Attitudes, Emotional Confidence and Emotion Intensity, but not with Social Confidence (below).

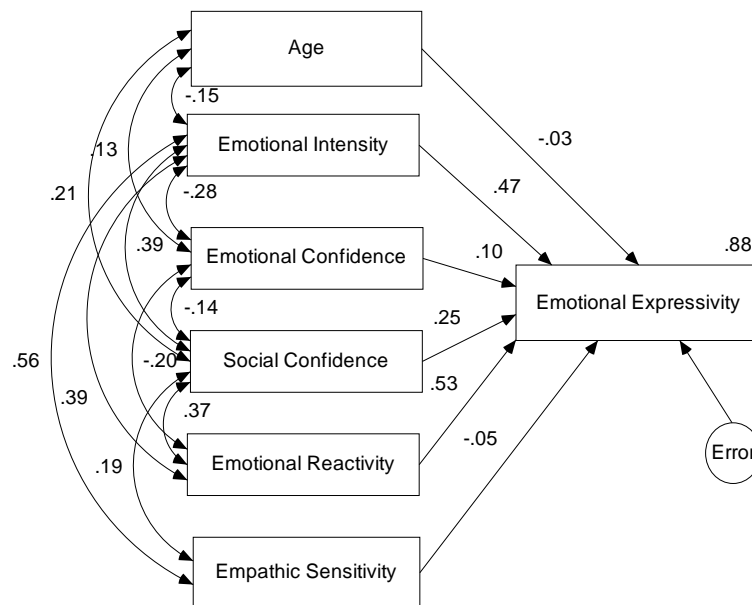


Empathy and association with 6 factors

The model achieved a chi-square of 10.037 with 6 degrees of freedom and was non-significant with $p = 0.123$. The value of the RMSEA fit statistic at .058 (moderate to good) and TLI of .979 confirmed a satisfactory fit. The squared multiple correlation for this model was .893, showing that the independent variables explain nearly 90% of the variation in EM and suggesting very little effect of other variables. The strongest causal links are between EM and the Affective Skills of Empathic Sensitivity and Empathic Attitudes. A small negative correlation was observed between EM and Social Confidence and small positive correlations with Age and Sex. The model includes a complex pattern of covariances.

EMOTIONAL EXPRESSIVITY

Linear regression proposed a predictive relationship between EE and scores in the EC factors of Emotional Intensity, Emotional Reactivity and Social Confidence ($p < 0.01$) and a negative relationship with Emotional Confidence ($p < 0.01$). Although the model predicted .88 of the variance it failed to achieve a best fit. As Emotional Intensity had strongly correlated with Empathic Sensitivity in the model of EC, it was included in a revised model. Age was also included as a possible predictor.



Emotional Expressivity - 6 factor model

An acceptable model using including six of the factors, but excluding Emotional Confidence, achieved a Chi-square of 4.879 (df4), $p = .300$. RMSEA at 0.033 and TLI of .993 suggested the model was acceptable (above). The squared multiple correlation for this model was .878, showing that the independent variables explain nearly 90% of the variation in EE.

APPENDIX 2: STUDIES 2A AND 2B

2.1. ETHICAL APPROVAL

Psychology Curriculum Group

REQUEST FOR ETHICAL APPROVAL

No study may proceed until this form has been signed by an authorised person, indicating that ethical approval has been granted.

This form should be accompanied by any other relevant materials, (eg. a copy of the research protocol, questionnaire to be employed, letters to participants/institutions, advertisements or recruiting materials, information sheet for participants¹, consent form², or other.)

Name of principal investigator: Jackie Meredith

Name of supervisor/tutor: Dr. Mark Coulson

Name(s) of student collaborator(s), if any:

TITLE OF STUDY

The role of deficits in affective perception and recognition, and distortions in interpersonal affect (emotional intelligence), in behaviour disturbance in primary-aged school children.

Please give a brief description of the nature of the study, including details of the procedure to be employed. Identify the ethical issues involved, particularly in relation to the treatment/experiences of participants, session length, procedures, stimuli, responses, data collection, and the storage and reporting of data.

This is a Pilot Study consisting of a Picture Pack – to be administered with instruction by the researcher or class teacher, as requested by the individual school. Some older children may be able to complete questionnaires without assistance after the instructions have been read out. Instructions will be in a standardised, written form.

To be administered to a mixed population of Primary aged school-children in years 3 to 6 (ages 7 to 11). Informed consent will be obtained from parents and child. Children will be fully briefed about what they have to do in line with ethical requirements, and their option to discontinue the task at any time will be made clear. Questionnaires have been styled so as to make the completion a pleasant experience for the child. Testing will take place in the familiar environment of the child's school.

The first four sheets contain pictures of children assuming different ambiguous stances and target children's attribution of emotion to these pictures. It also asks for their perceived confidence in making the attribution. The final two sheets contain pictures of children's facial expressions and asks for ideas as to why the faces have changed. This test has been developed in response to findings from the Pilot Questionnaire Study.

The picture tasks require ticking boxes that offer suggestions as to emotions, and commenting on the emotion shown in four faces. Sessions are expected to last for no more than 20 minutes for each child – older children may well complete it in less time. Reading assistance should not be necessary in most cases. Children will complete the Picture Pack with a pen or pencil and provide details of age, birth date, year at school and gender. For confidentiality, no name will be required.

Data will be stored in an Access database on computer and transferred into SPSS (and possibly other statistical packages) for analysis. Results will be reported as samples (from each of the schools involved). Individual cases will not be analysed at this time.

A computerised version of the Picture pack is in progress. This will feed directly into an Access database. All stimuli will be the same as in the paper version. This computerised version will be used for the subsequent study of children with behavioural difficulties.

Sample questionnaires (half original size), parent/child information sheets, parent/child consent forms and administration instructions are attached.

How does the proposed study contribute to knowledge?

By examining children's attribution of emotion to ambiguous stances in the pictures on the first four sheets it will be possible to determine any significant differences in attribution between genders and groups of children. The request for perceived confidence in making the attribution will show how confident the children are in their abilities and whether, as the Pilot study would suggest, children showing some behavioural problems are over-confident in their abilities whereas children with special needs are under-confident, compared to a normal population. The final two sheets contain pictures of children's facial expressions and ask for ideas as to why the faces have changed. Here we are looking for a basic ability to perceive change and attribute it to states of mind.

Once standardised, this Picture Pack will be used along with other tests to examine differences in response and appraisal in children with behavioural problems. It is intended that this will identify possible deficiencies in emotional knowledge occurring in this population. This is a novel test, although the final section has been inspired by a validated test for depth of emotional knowledge.

Computerised version of tests will be useful for behavioural disturbance population who are often resistant to filling in paper forms, and should provide greater enticement to complete the tests.

2. Could any of the procedures that you are proposing to adopt result in any adverse reactions?

YES/NO

If "yes", what precautionary steps are to be taken?

3. Will any form of deception be involved that raises ethical issues? (Most studies in psychology involve a mild degree of deception insofar as participants are unaware of the experimental hypotheses being tested. Deception becomes unethical if participants are likely to feel angry or humiliated when the deception is revealed to them.)

YES/NO

If participants other than Middlesex University students are to be involved, where do you intend to recruit them?

From local schools in the Greater London and Essex area. These schools will represent a range of child populations, including those with a high proportion of E2L (English as second-language) children and Church of England schools.

6. Does the study involve

Clinical populations

YES/NO

Children (under 16 years)

YES/NO

Vulnerable adults such as individuals with mental health problems,

ETHICAL APPROVAL

learning disabilities, prisoners, elderly, young offenders? **YES/NO**

7. How, and from whom, will informed consent be obtained (see *consent guidelines*²)?
From parents and children (forms attached)

8. Will you inform participants of their right to withdraw from the research at any time, without penalty (see *consent guidelines*²) **YES/NO**

9. Will you provide a full debriefing at the end of the data collection phase (see *debriefing guidelines*³) **YES/NO**

10. Will an opportunity exist to discuss the study with the participants to monitor any negative effects or misconceptions? **YES/NO**
If “yes”, how do you propose to deal with such problems?
Not really – see attached sheet

11. Under the Data Protection Act, information about a participant is confidential unless otherwise agreed in advance. Will confidentiality be guaranteed? **YES/NO**
If “yes”, how will this be assured? If “no”, how will participants be warned?

Children will be identified only by ID number, school number and date of birth. Any published results of this study will not identify any of the participants or the schools from which they originated.

(NB: You are not at liberty to publish material taken from your work with individuals without the prior agreement of those individuals).

12. Are there any ethical issues which concern you about this particular piece of research, not covered elsewhere on this form? **YES/NO**
If “yes” please specify:

(NB: If “yes” has been responded to any of questions 2,3,5,11 or “no” to any of questions 7-10, a full explanation of the reason should be provided on a separate sheet, and submitted with this form).

I have read the British Psychological Society’s *Ethical Principles for Conducting Research with Human participants*⁴ and believe this proposal to conform with them.

Researcher..... date

Signatures of approval:

Supervisor..... date

Ethics Committee..... date

(approval granted for the study to proceed)

^{1,2,3,4} **Guidelines are available from the Ethics page of SOCNET**

REASONS FOR INVOLVEMENT OF CHILDREN UNDER 16 YEARS.

REF:

5. Does the study involve:

Children (under 16 years)

YES/NO

As this study is setting out to examine emotional knowledge in primary aged school-children, it is necessary to carry out this research with children aged under 16 years.

Full parental consent will be obtained for all participants, along with child consent. Information sheets explaining the study and its purpose will be provided to both parents and children. Full standardised instructions will be given by the researcher.

No names will be used in recording, analysis or publication of the statistics gathered in this study.

REASONS FOR NOT FULLY DEBRIEFING CHILDREN.

REF:

8 Will you provide a full debriefing at the end of the data collection phase

(see *debriefing guidelines*³)

YES/NO

The children will be given a verbal opportunity at the end of the test to say what they thought of the Picture test. In addition the child will be given the opportunity to express, by choosing a “smiley/neutral/cross” face icon, whether they liked the test or not. In addition, there is no deception involved in this test, where we are asking the children to attribute feelings to drawings of other children.

However, the nature of this study is to examine links between differences in emotional knowledge and behavioural problems. As this is a study taking place within a general school population it is not deemed necessary to acquaint the children with all the underlying aspects of this study.

REASONS FOR NOT DISCUSSING THE STUDY WITH THE PARTICIPANTS

REF:

9. Will an opportunity exist to discuss the study with the participants to monitor any negative effects or misconceptions?

YES/NO

All participants and parents will be given information sheets prior to the study and invited to ask questions beforehand. Participants will be informed of their right to withdraw from the investigation at any time. The children will also be given an opportunity at the end of the test to say what they thought of it.

However, as no deception or manipulation of participants is involved it is not thought to be necessary or appropriate to fully discuss the study with the participants. It is not predicted that any negative effects or misconceptions will arise throughout this process. Staff at the schools concerned will be fully briefed by the researcher at a meeting prior to the testing, so that they will be fully acquainted with the study and able to reassure the parents and children, particularly with regard to anonymity, should the occasion arise.

2.2. CONSENT AND INFORMATION SHEETS

C O N F I D E N T I A L

Middlesex University

CHILD CONSENT FORM

CONSENT TO PARTICIPATE IN RESEARCH STUDY

I (name)

of (school)

.....

agree to take part in the research project by Middlesex University.

I have been told what the Study is about and I have read the information sheet, which explains what I have to do. I have asked any questions I might have.

I understand that my name will not be made public in any way in connection with this study. I know that at any time I can decide not to continue if I do not want to.

Signed Date

Witnessed by Date

RESEARCHER'S STATEMENT

I have explained the nature, demands and foreseeable risks of the above research to the participant.

Name Position

Signed by..... Date

RESEARCH INFORMATION SHEET FOR CHILDREN

PICTURE STUDY OF HOW CHILDREN VIEW OTHERS' FEELINGS

Your school has to take part in a research study about how children recognise feelings in their friends. It is important you understand what the research will involve. Please take time to read this sheet carefully, and discuss it with others if you wish. If anything is not clear, or you need more information, please ask.

Why Is This Study Being Done?

We would like to know more about how children like you see other children's feelings, and the only way to find out is to ask.

What Will I Have To Do? What Will I Be Asked About?

You will be given 4 sheets with pictures of children. You will be asked to put a cross in a box under each picture choosing how you think each child is feeling, and how sure you are about your decision. You will then have two sheets with children's faces, and be asked what you think they are feeling. You will also be asked whether you liked the task or not.

How Long Will It Take To Do This? Where Will I Do It?

It should take between 15 and 20 minutes to look at the pictures and make your decisions, and you will do it in your own school, probably in your own classroom.

What If I Change My Mind and Don't Want to Carry On?

Participation in this research is entirely voluntary. This means you do not have to take part if you don't want to. If you decide to take part you may withdraw at any time without giving a reason.

What does this mean?

It means that whatever you decide to do is okay. If you change your mind in the middle of the picture test, just tell us and you can stop. It is no problem, and you wouldn't need to tell us why. However, we would like you to finish all the sheets, as otherwise we will not be able what you have done.

Will Anyone Else Know What I Say?

Everything you do and say will be kept anonymous and confidential - that means no one will know it is you - we will use numbers for each answer sheet and not your names. Also, the answers will only be seen by the research team, and no-one else.

If you are happy to continue with this research, you will be asked to sign a 'consent form' with your class before you start. It says that you have read this sheet and are happy to do the picture test.

Thank you for reading this information sheet.

** All proposals for research using human subjects are reviewed by an Ethics Committee before they can proceed. The Middlesex Psychology Department's Ethics Committee have reviewed this proposal. **

C O N F I D E N T I A L

Middlesex University

PARENT CONSENT FORM

PARTICIPATION OF CHILD IN RESEARCH STUDY

Name of
Parent/ Primary carer*

Name of child

School Address:
.....

Head Teacher

Class Teacher

I agree that my child/ward* may take part in the research project undertaken by Middlesex University.

I give my consent for my child to complete a picture pack on the subject of other's feelings.

I confirm that I have read the information sheet and understand the nature of the research. My child's part in this study has been made clear and I understand that his/her name will not be made public in any way.

I also understand that my child may withdraw from the research project if they are unwilling to continue for any reason.

Signed: Date

Investigator's Statement

I have provided an information sheet explaining the nature and demands of the above research to the participant and carer. Participation in this pilot study is purely voluntary.

Name: Signed: Date:

***delete as appropriate**

RESEARCH INFORMATION SHEET

Emotional Literacy Project - PICTURE PACK



Your child's school has agreed to help with a new study through which we hope to improve knowledge about children's understanding of emotions. The activity is a Picture Pack designed for children aged seven to eleven in mainstream schooling. For our research we will need to know the children's ages, gender and dates of birth, in order to compare the responses from younger and older children. We do not use any names and everything will be anonymous.

Your child will be asked to respond to a series of pictures like the picture shown here by choosing (from a selection of options) what they think the child is feeling. There will also be a place for your child to say how confident they are in their choice, and whether or not they liked the activity.

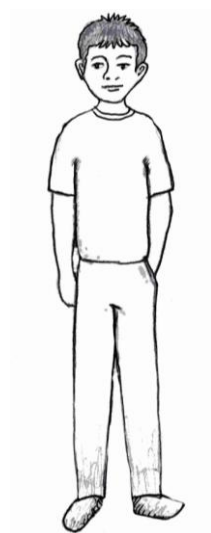
It should take between 15 and 20 minutes to complete the sheets, and they will do this in their own school, in the classroom, probably as part of a class activity.

This pack is part of a wider study to gain information about children's emotional understanding. It is important because it will help us to understand behavioural problems in schools and we hope it will help to improve life skills and the school environment for all children.

Participation in this activity is not compulsory but we hope you will not disallow your child from taking part. Without families like yourselves we cannot continue our research.

Please also encourage your child to read the Children's information sheet.

Thank you for reading this information sheet.



MIDDLESEX UNIVERSITY – OFFICIAL STATEMENT

Participation in this study is entirely voluntary, and families should not feel under any pressure to participate in the research. Your child does not have to take part in this study, and may withdraw at any time without having to give a reason. The decision whether to take part or not will not affect your family or child in any way.

Declaration of Confidentiality:

All records for this project, whether written materials or computer records, will be kept securely. Participants will be identified by a serial number, and not their names. Where information is analysed for publication, only statistical trends will be reported, and there will be no disclosure of individual or identifiable information.

The research is being conducted under the direction of senior researchers. Should you have any concerns or questions about the research, please feel free to talk to your child's school or contact either member of the research team (Jackie Meredith, Researcher, or Dr. Mark Coulson, Research Supervisor) at:

Middlesex University
School of Health & Social Science
Queensway
Enfield, MIDDLESEX. EN3 4SF

Tel: 020 8411 5420 (Jackie Meredith)
Tel: 020 8411 6290 (Dr. Coulson)

All proposals for research using human subjects are reviewed by an Ethics Committee before they can proceed. The Middlesex Psychology Department's Ethics Committee have reviewed and accepted this proposal.

2.3. STANDARDISATION OF EMOTIONAL FACES FOR STUDY

2B

A sample of 38 adults was used to standardise the emotional faces. A significant number chose the same labels for the four faces: happy, sad, angry and happy respectively. Although the majority concurred as to the facial emotion expressed, this was not the case for all adults. The table below shows a selection of unusual responses received for the two boy faces which indicate an atypical bias in perception.

RATER	Boy 1 - happy			Boy 2 - sad		
	Primary Emotion	2 nd choice	3 rd choice	Primary	2 nd choice	3 rd choice
1	contented	happy	cunning	sulking	sad	attention seeking
2	mischievous	contented	-	remorse	sad	upset
3	shy	unhappy	lonely	sad	unwanted	unhappy

Selection of atypical responses from Boy faces standardisation.

Boy 1 is admittedly the most ambiguous as his smile was not broad leaving it open to interpretation. Rater 1 allows for the possibility that the child is devious: apparent happiness may be cunning, a sad child is attention seeking or sulking. Rater 2 thinks the smiling child is primarily up to no good and later remorseful. Rater 3's choices could be seen as indicative of a depressive profile with unusual responses such as 'unwanted'.

As would be expected the first female picture, which was generally seen as 'angry', was also interpreted as 'grumpy' and 'jealous' amongst other things, attracting the widest range of choices (see examples below). Most atypical responses were still within the same valence

category and there were no ratings of positive valence for the first picture. Three interesting responses of 'disgust' also appeared.

RATER	Girl - angry			Girl - happy		
	Primary Emotion	2 nd choice	3 rd choice	Primary	2 nd choice	3 rd choice
1	angry	spoilt	unhappy	happy	contented	jolly
2	revengeful/ spiteful	tantrum	tearful	happy	relaxed	mischievous
3	disgust	anger	-	devious	happy	-

Selection of atypical responses from Girl faces standardisation.

As this sample consisted of were typical adults it must be assumed they have the capacity to recognise accurately emotion in another. The variation in the attribution of emotion to a pictorial representation is illustrative of the role that internal states play in endowing a bias or emotional slant upon the assessment of other's states.

IDENTIFYING EMOTIONS



WHAT ARE THE CHILDREN FEELING?

Look at the pictures and put your ideas underneath.

This is not a test; we need help in the development of a child's emotion activity.

PICTURE 1



Most Likely	
Second most likely	
Another possibility	

PICTURE 2



Most Likely	
Second most likely	
Another possibility	

PICTURE 3



Most Likely	
Second most likely	
Another possibility	

PICTURE 4



Most Likely	
Second most likely	
Another possibility	

THANK YOU FOR YOUR HELP!

2.4. VIGNETTES OF EMOTIONAL CHANGE FROM TYPICALLY DEVELOPING SAMPLE

Children's emotions and reasons for emotional change were coded by the author in accordance with the coding schemes shown in Chapter 6.2.1 and 6.2.2. What follows is a discussion of the types of answers provided together with examples taken from the sample.

Inadequate Answers

A number of children were unable to give a reason for change and received a score of 0; examples below.

1) (HAPPY/SAD) Child offers no reason for why the emotion might have changed:

- 1) happy
- 2) very sad
- 3) because he doesn't feel happy anymore

In fact, statement 3 here could be taken simply as a reiteration of the emotion in picture 2 – another way of saying 'he was happy now he is sad'. Accordingly, this has to score a 0 for emotional change, although the two emotions will score 3 each for being primary choices.

2) (HAPPY/SAD) Child provides primary emotions but shows they do not understand the idea of emotional transition:

- 1) happy
- 2) sad
- 3) because one has friends and one doesn't have friends

In fact here it is not even certain that the child understands that the pictures are of the same person. This scored a 0 for emotional change.

3) (ANGRY/HAPPY) Similar from Girl pictures:

- 1) grumpy
- 2) happy
- 3) this girl is grumpy because she does not want to share / this girl is happy because she has been kissed

Again, this scored a 0 for emotional change.

4) (HAPPY/SAD) Statement contradicts the emotional direction of the two pictures:

- 1) happy
- 2) sad
- 3) This might have changed because someone might want to play with him

A response like this also scored a 0.

5) (HAPPY/SAD) Emotions given for the faces contradict reason for change:

- 1) happy
- 2) happy
- 3) Because the boy in picture 2 is really sad

This scored a 0 for reasons (a simple repetition of the facial expression) and a 0 for the second emotional choice – even though it may have been a slip of the pen.

Bizarre responses automatically receive a 0:

6) (ANGRY/HAPPY)

- 1) very angry
- 2) shy
- 3) she looks very shy and new but she is pretty

The first emotion is not echoed in the statement at all, so it has to be assumed that the statement refers to the second picture only. However, the emotion for the second picture is not appropriate and the statement does not refer to mental states as much as to the physical appearance of the girl. This scored 0 for emotional change.

7) (ANGRY/HAPPY) – NB pictures were of a girl, not a boy:

- 1) grumpy
- 2) happy
- 3) because he might have hit by the grumpy one

Bizarre enough to give an automatic 0

Low Scoring Items

1) (HAPPY/SAD) Use of a purely physical reason for change, like ‘he hurt himself’ or ‘he fell over’ is considered to be less mature, for example:

- 1) happy
- 2) sad
- 3) because he hurt his self

The writer has identified the primary emotions correctly, but there is no evidence that they understand the process of emotional change and the statement in answer 3 could apply quite simply to the second picture – i.e. why is he sad? This answer scored a 1.

2) (ANGRY/HAPPY) Purely physical reason from the girl pictures:

- 1) cross
- 2) happy
- 3) she got some sweets

Two appropriate emotions but basic answer which does not allude to any process of change. Scored 1.

(HAPPY/SAD) In contrast, a more sophisticated response:

- 1) happy
- 2) sad
- 3) he was having a nice game then falls over and hurts himself

The emotional transition is clearly expressed here – the two emotions given fit perfectly with the reason for change. This answer scored a 3 although the reason for change was a physical one.

Middle Range Items – Typical Responses

Typical age-appropriate expressions and therefore scored a 2, as with the example below:

1) (ANGRY/HAPPY) Girl reasons:

- 1) grumpy
- 2) very happy
- 3) because her friends have included her in games

The child has provided a simple social reason for the girl in picture 2 to be happy, with no real reference to emotional change.

2) (HAPPY/SAD) Boy reasons:

- 1) very happy
- 2) quite sad
- 3) his friend has decided not to be his friend forever

Again in the example above, a simple social reason for sadness: this scored 2.

At other times the reason for change was more sophisticated but the child has not been awarded a 3 because of the item response as a whole. For example, it was agreed during the process of inter-rater reliability to include in the coding scheme a proviso that if the child did not choose an appropriate emotion for both of the two pictures in questions 1 and 2, they could not gain a full score for the emotional change statement in question 3.

3) (HAPPY/SAD) Child chooses an emotion for the first picture which is of a different valence:

- 1) sneaky
- 2) sad

- 3) Because he might have been sneaky and then got told off

Although the child has given a reason for an emotional transition that fits with the two emotions given, they have scored a 2.

- 4) (ANGRY/HAPPY) Girl reasons:

- 1) not friendly
- 2) very happy
- 3) because she was lonely but she made friends

Here the emotional transition is given, but the first emotion is inadequate – in fact it is not really an emotion at all. This case could only score 2.

- 5) (ANGRY/HAPPY) One emotion given does not fit with the reason given:

- 1) angry
- 2) friendly
- 3) because she might have been lonely and some people came along and played

Here the emotion 'angry' is not appropriate for the explanation that the girl was lonely. This reason can only score 2.

- 6) (ANGRY/HAPPY) Child did not enter an emotion for one of the faces:

- 1) 999 (missing data)
- 2) good and friendly
- 3) She had to do a job and she didn't want to but she's done it and she feels happy

Very sophisticated answer, but as the child has failed to complete the task only a 2 was awarded.

- 7) (HAPPY/SAD) Potential to be high scoring, but without any indication of a transition; reason for change quite sophisticated (if a little alarming) but the emotions given in answer to questions 1 and 2 do not enhance the statement – in fact answer 1) is a little inappropriate:

- 1) feeling excited
- 2) feeling miserable
- 3) because someone bullied him or hurt him in a way that nobody else knows

The answer could apply to the second picture exclusively and does not indicate any transition from one state to another. This answer scored a 2.

- 8) (HAPPY/SAD) Includes the prefix of 'his feelings have changed' but the choice of emotions does not enhance this answer to indicate that the writer can express what is meant by an emotional transition:

- 1) happy
- 2) upset
- 3) I think his feelings have changed because other people have been bullying him

Although the child has spoken of emotion change, this could be taken to have been prompted by the question, which asked “If his feelings have changed... why might this be?” Without further support for emotional change this answer scored a 2.

High Scoring Items

A score of 3 indicated a sophisticated understanding of emotional change and an ability to construe appropriate emotions on facial representations. Interpretation of coding scheme relied upon the emotions which the children gave for the two faces. On a number of occasions there was an implicit change in emotion which, were the ‘reason for change’ taken in isolation, may not have warranted a full score of 3, for example:

1) (HAPPY/SAD) The child has spoken of emotion change, this could be taken to have been again prompted by the question which asked why the feelings may have changed. However, if response 3 is taken in conjunction with the emotions provided:

- 1) happy and playful
- 2) sad and lonely
- 3) maybe he’s changed his feelings because people have said that he can’t play anymore

It is clear that the child is referring to a transition from being happy in play to being sad in rejection. The transition, therefore, can be enhanced by the emotions provided by questions 1 and 2. This answer scored a 3.

2) (HAPPY/SAD) The transition is explicitly expressed:

- 1) happy
- 2) sad
- 3) He could have been playing a game happily and got told to get lost so he felt sad

This writer has given the two primary emotions and then explicitly referred to a change in emotion and a reason for change. This scored a 3.

3) (HAPPY/SAD) These two responses both had primary emotion choices. Although one is more explicit than the other they both give a reason for the change in emotion and indicate a transition. The first does this by use of the conjunction ‘then’:

- a) “The boys feeling might have changed because he was playing a game and then all his friends have kicked him out of the game”.

This second by the use of the suffix ‘anymore’ – indicating that they had previously let him play:

b) “The boys feeling might have changed because his friends might have not let him play with them anymore”.

Both of the above scored a 3.

Very similar responses, this time from the girl pictures, but a quality difference in the wording:

3) (ANGRY/HAPPY) Some reference to a transition, in that if someone was ‘cheered up’ they must have been upset to start with:

- 1) cross
- 2) happy
- 3) someone might have cheered her up

However, it is not clear and this scored a 2.

4) (ANGRY/HAPPY) More detail – ‘they might have made up’ indicates a disagreement or fight of some kind, which would have generated the ‘angry’ primary emotion.

- 1) angry
- 2) happy
- 3) someone might of cheered her up or they might of made up

Although again the transition is not explicit, this could be a 3.

5) (ANGRY/HAPPY) Quality difference. The same ‘cheered up’ is given for the happy emotion, but this time we have a scenario with an explicit transition and explicit reference to emotion.

- 1) cross or angry
- 2) very happy
- 3) she might be cross with her parents and then her friends have cheered her up

This is definitely a 3.

6) (HAPPY/SAD) A complex response:

- 1) I think he is feeling happy
- 2) he looks sad and grumpy
- 3) In picture one I think he is playing a game with somebody then been kicked out of the game in the second one.

The child has referred explicitly to the two pictures in the answer and it could be posited that there is no transition given here – the statement could be two observations taken in isolation. However, the use of the conjunction ‘then’ indicates that the statement is to be taken as a whole. Emotional states are implicit in the statement and fit with those given, so this scored a 3.

7) (ANGRY/HAPPY) Straight award of 3 with this response set:

- 1) very angry
- 2) happy
- 3) first of all she broke up with her friends and now happy because she's made up

This is a very simple but articulate response and shows the writer has a fully understanding of emotion and emotional change. Note that most of these responses are socially based, in keeping with the focus on peers of this age group.

Other Issues

As the picture pack was completed in a class situation, it is possible that on occasions one child would copy from another. This would become more evident as most activity packs were collected consecutively – and immediately given a research ID by the author, meaning that scripts from children sitting next to each other would have close ID numbers. As it was not possible to identify which child had copied and which was the originator, answers were judged on their merits.

For example, the two cases below – with consecutive ID numbers:

- 1) angry
- 2) happy
- 3) maybe her boyfriend dumped her but then turned up with a bunch of flowers

- 1) angry
- 2) cheerful
- 3) because the boy she likes also likes her or maybe her boyfriend has turned up with a bunch of flowers

The first has two primary emotions and a clear transition with both emotions implicit – it scored a 3. The second case has one primary and one appropriate emotion (not in itself a problem) but the comment has no hint of a transition and could apply to picture 2 alone – therefore scoring a 2.

One very simple response gave an indication not of emotional transition but of dual emotions:

- 1) happy
- 2) sad
- 3) he is happy to go to school but he is lonely

This does not fulfil the criteria for a 3, in that there is no transition at all, so it has to score a 2. However, it is a very interesting response and indicates a depth of mentalising which should otherwise have been rewarded, but the scoring system has to be adhered to.

2.5. NOTES FOR TEACHERS

EMOTIONAL LITERACY PROJECT

NOTES FOR TEACHERS

CHILD CONSENT

Before you start, each child must fill in a Consent Form, giving their name and school and then signing it.

The Consent Forms can be collected in before the test starts. Please could you also ‘squiggle’ a signature on each of the forms, as a witness to the fact that the child consented to the study. This can be done afterwards by you as class teacher, or by a classroom assistant. These forms are always kept separately from the questionnaires – there is no personal association, and questionnaires remain completely anonymous. We simply need to have complied correctly with the requirements of the British Psychological Society for ethical consent – which means having the same number of child consent forms as completed questionnaires.

ADMINISTRATION

This Picture Pack is designed for use with primary school children from Key Stage 2 onwards – Years 3 to 6. A few children may not be able to read all the material – particularly children in younger classes or with reading problems. The pilot study showed us the best way to administer the questionnaires is for the class teacher to read out the administration instructions from the laminated card (*this is important so that all the children will have the same instructions*) and then continue to read out the questionnaire statements as the children fill them in.

Each picture has a set of eight possible feelings with tick boxes beside. If you would like to do so, read out the selection to the children before they start the test. The administration instructions allow a chance for you to read through with the children make sure that they know what to do. It may be that some of the pupils will find it difficult to decide how to respond to the pictures. Please **DO NOT PROMPT THEM** with IDEAS. Simple prompts can be used, such as “Don’t worry, just give your best guess”. It is **VERY** important for the study that the ideas are the childrens, not ours. If they find it really hard to say, there is an opportunity under each picture to say “very unsure”. Part of the method behind this activity is to see **HOW SURE** children are about their ability to determine mood states in others. If we give them our ideas, then we are compromising the test itself.

The activity should not take too long to administer – about 20 minutes probably. Again with the two pages at the end, where the children are asked for their ideas, please encourage them to give it a try, but don’t give them ideas. If they cannot think of anything, suggest they write “I don’t know” rather than leave the place blank, as this will be a bona-fide answer to the question and will become part of the analysis. I know how difficult it is not to intervene if a child is in a quandary about the activity, but we cannot use the responses unless they come from the children!

SAMPLE INFORMATION – CLASSIFICATION & CULTURE

We need a large sample of “normal” children’s responses as well as those from children with behavioural problems in school. This is why we are using mainstream schools for this project. As we are giving the questionnaire to a mixed group of children we need to identify children who have behavioural problems or are on the special needs register for learning difficulties so that we can analyse their group differences.

As part of the ongoing study of children’s differences we would also like to know the children’s cultural backgrounds. The groups we are interested in are:

Turkish,
Mediterranean,
White (generally UK or other white European, Canadian, US, etc., etc.), or
African-Caribbean.

Although this may seem a politically sensitive area, Turkish researchers at Middlesex are very interested in cultural differences in this group, and have suggested that there may be differences in the way they perceive emotion, particularly appropriate emotion, in self and others. I have been asked to see whether children from different cultural groups (particularly Turkish) have different ways of looking at emotions, so that they can be helped if it proves to be the case.

At the base of the orange cover sheets, outside the dotted area, there is an empty thick-lined grey box. AS YOU COLLECT IN EACH QUESTIONNAIRE after the test, please could you mark the grey box on the orange cover sheets with the two letters, one for classification and one for culture, as follows: indicators:

N – normal sample

B – behavioural difficulties – Stage 2 or above (*including SEN with behavioural problems*)

S – special educational needs

AND:

W – White

T – Turkish

M - Mediterranean

A – African-Caribbean

O – Other (any child who does not fit the above categories)

E.G:

BW

 = behavioural problems, White

NT

 = normal sample, Turkish.

Thank you very much for helping with this research

2.6. SUPPLEMENT FOR TEACHING STAFF

What is Emotional Literacy?

Emotional literacy = the ability to identify, understand and express emotions in a healthy way.

Sometimes called EIQ – Emotional Intelligence.

Intelligence of the heart = learning to act and react with integrated reason and feelings, instead of with emotional immaturity – like spoilt children.

As with other forms of literacy, it is a combination of knowledge and the ability to practice. Teaching children emotional literacy is to give them the ability to handle the complexities of emotional life. It is as important to their overall wellbeing and their long-term outcome as the capacity to read, write and 'do' maths.

It is also important in the short-term, as children work their way through all the emotional pitfalls involved in growing up, learning to challenge themselves (and delay gratification!) and make lasting friendships with their peers.

Emotionally literate children:

- Are better adapted within the classroom,
- Find it easier to cope under pressure,
- Can forestall play in order to work when it's needed,
- Work better in groups (because they communicate better with others non-verbally)
- Contribute more in the learning environment
- Encourage and support others.

More local education authorities are getting involved with Emotional Literacy as part of the curriculum for their schools – Barnet for example.

"Emotional Literacy is the practice of thinking individually and collectively about how emotions shape our actions, and of using emotional understanding to enrich our thinking."

Susie Orbach, "Antidote" – the campaign for emotional literacy.
See website <http://www.antidote.org.uk> for further details.

2.7. STANDARDISED INSTRUCTIONS

CLASS ADMINISTRATION INSTRUCTIONS – PICTURE PACK

- We would like you to complete a short Picture Pack. It is in two parts. On the first part you will find some pictures of children. Each picture is different.
- Underneath each picture will be some suggestions of how the child might be feeling.
- We want you to choose, by ticking one of the boxes under each picture, what feelings you think each child has at that time.
- There are no right or wrong answers; we want to know what you think the children would be feeling.
- Underneath the first box you will see another box asking how sure you are about choosing that feeling. We would like you to tick your choice in that box as well.
- In the second part you will find two pages with pictures of children's faces. We would like you to give as an idea what they might be feeling, and if they have changed their feelings, why that might be.
- There are no right or wrong answers - everyone will have different answers. That is okay.
- Remember, this is not a test, so you can relax.



Now let's look at the Picture Pack

- On the front of your papers you will see a blue sheet.
- The middle part has a dotted line around it and is for you to fill in. It has a picture of a writing hand. Can you see it?
- Please fill this in now, as much as you can. If you can't remember all of your birth date, just do your best.
- Now let's look at the first sheet. It is called "Matching Feelings". It asks you to choose the MAIN feeling for the each child that you see.
- Under each picture are some boxes with ideas, like "sad", "wants to play" "angry" or "no feelings". Can you see this?
- If you think the first child looks sad, then put a cross in the box next to the word "sad" underneath the child.
- If you like think the first child looks grumpy, put a cross in the box next to the word "grumpy" underneath the child.
- Under each 'feelings' box you will see another section called "HOW SURE I AM. If you feel very sure of your choice, put a cross in the box next to "Very Sure". If you are not sure, or quite sure, choose one of these instead.
- When you have finished the pictures of the children, you will find two pages labelled "FACES AND FEELINGS". These are pages 5 and 6.
- There are two pictures on each page, and 3 questions. The first two ask you what feelings you see in the picture, the 3rd question asks for your ideas about the two pictures. (You can read these questions out to the child if you think they may not be able to read it - but don't prompt for answers)
- There are no right or wrong answers for these questions; we just want to know the ideas of children like you.
- Now you are ready to start. Do you have any questions?
- Remember, if you are not sure about anything, you can ask. If you need help, that is okay too.



EMOTIONAL LITERACY PROJECT

Project Telephone Enquiries:

Dr. Mark Coulson BSc C Psychol AFBPsS

Mrs. Jackie Meredith BSc CLANSA

Work: 020 8411 6290

Work: 020 8411 5420



DATE:

NUMBER:

SCHOOL:

RESEARCH ID:

CHILDREN'S PICTURE PACK

Middlesex University is working with your school to understand more about the way children see each other. We do need to know a few details about you for our research, and it would help if you could fill this sheet in before answering the questions. All information given will be completely anonymous and you are not asked to give your name.

My age at last Birthday:

My Year at school is:



*This section
(inside the dotted
line) is for you to
fill in!*

I was born on:

Day:

Month:

Year:

My class is:

I am a: Boy



Girl



(Please tick the correct box)

PICTURE PACK PART 1 - MATCHING FEELINGS

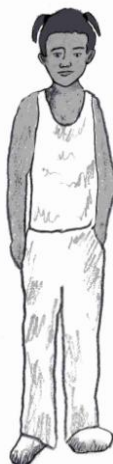
What do you think are the MAIN feelings of these children? You will see a box under each of the children with suggestions about how they might be feeling. Put a cross in the box besides the word or phrase that best describes what you think they might be feeling. There are no right or wrong answers – only what you think best fits the boy or girl. Then tick the box to say how SURE you are of what the feeling is.

Please note: Each 4 pictures had a full page spread. To fit into this document with specified margins, sizes of figures and boxes have been reduced.



This girl feels:	
<input type="checkbox"/>	Sad
<input type="checkbox"/>	Lonely
<input type="checkbox"/>	Like playing
<input type="checkbox"/>	Grumpy
<input type="checkbox"/>	Friendly
<input type="checkbox"/>	Angry
<input type="checkbox"/>	Nothing much
<input type="checkbox"/>	Like fighting

How sure I am:	
<input type="checkbox"/>	Very Sure
<input type="checkbox"/>	Quite Sure
<input type="checkbox"/>	Not Sure



This girl feels:	
<input type="checkbox"/>	Sad
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<input type="checkbox"/>	Quite Sure
<input type="checkbox"/>	Not Sure

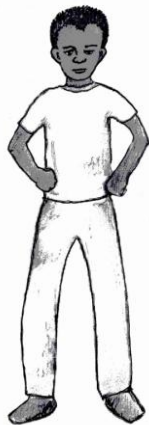


This boy feels:	
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PICTURE PACK PART 1 - MATCHING FEELINGS

What do you think are the MAIN feelings of these children? You will see a box under each of the children with suggestions about how they might be feeling. Put a cross in the box besides the word or phrase that best describes what you think they might be feeling. There are no right or wrong answers – only what you think best fits the boy or girl. Then tick the box to say how SURE you are of what the feeling is.



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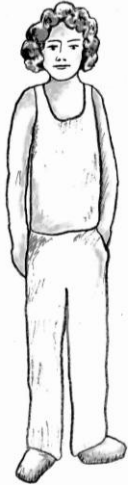


This girl feels:	
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What do you think are the MAIN feelings of these children? You will see a box under each of the children with suggestions about how they might be feeling. Put a cross in the box besides the word or phrase that best describes what you think they might be feeling. There are no right or wrong answers – only what you think best fits the boy or girl. Then tick the box to say how SURE you are of what the feeling is.



This girl feels:	
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<input type="checkbox"/>	Lonely
<input type="checkbox"/>	Like playing
<input type="checkbox"/>	Grumpy
<input type="checkbox"/>	Friendly
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<input type="checkbox"/>	Quite Sure
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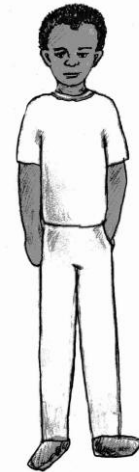
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<input type="checkbox"/>	Friendly
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<input type="checkbox"/>	Nothing much
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How sure I am:	
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<input type="checkbox"/>	Quite Sure
<input type="checkbox"/>	Not Sure

PICTURE PACK – PART 2 - FACES AND FEELINGS

First look at Pictures 1 and 2. Alongside pictures 1 and 2 are three questions. Under each question is a line for your response. There is no right or wrong answer, just say what you think you can see in each picture. The third question asks for your ideas. Again, there are no right or wrong answers – just say what you feel.

PICTURE 1



1. What do you think the boy in picture 1 is feeling?

3. If his feelings have changed in Picture 2, why might this be?

PICTURE 2



2. What do you think the boy is feeling in picture 2?

Now look at the pictures on the next page...

PICTURE 3

What do you think the girl in picture 3 is feeling?

PICTURE 4

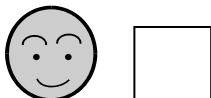
2. What do you think the girl is feeling in picture 4?

3. If her feelings have changed in Picture 4, why might this be?

Thank you for your help in completing this Picture Pack.

Now choose the face that represents what you thought of it!

LIKED IT



NOT SURE

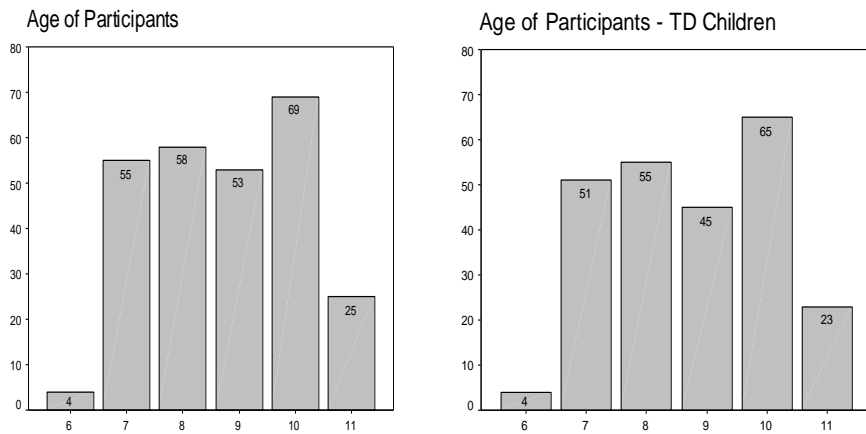


DIDN'T LIKE IT



2.9. SAMPLE ANALYSES STUDY 2

AGE OF PARTICIPANTS



FEEDBACK

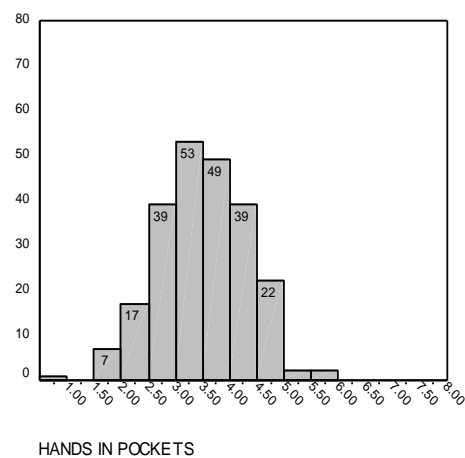
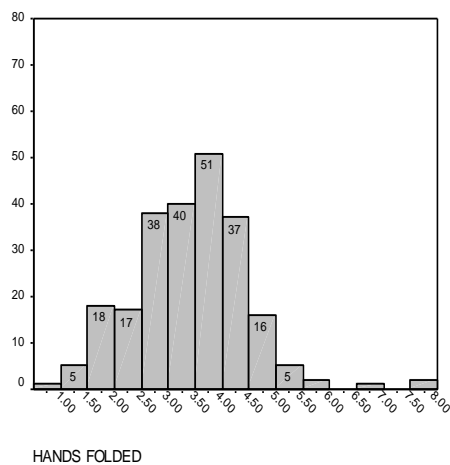
Full Sample feedback:

FEEDBACK FOR ALL CHILDREN (N=252) (12 missing)	Frequency	Percent
Liked it	170	64.4
Not Sure	71	36.9
Didn't Like it	11	4.2
Total	252	95.2

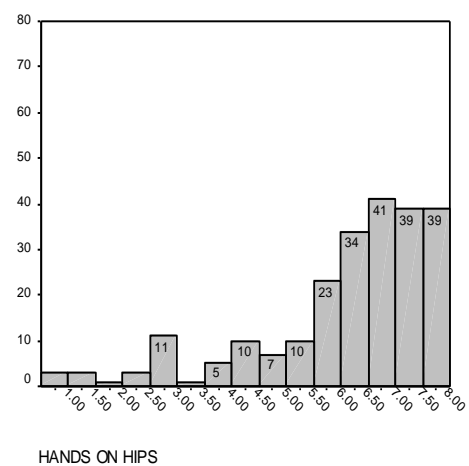
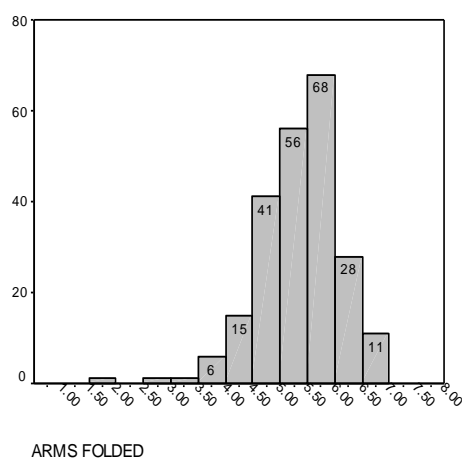
2.10. STUDY 2A – DESCRIPTIVE DATA ON CHOICE OF AFFECT ACROSS ALL 8 CATEGORIES.

POSTURE GROUPS

The histograms below show the full spread of mean scores for each body postures, including all four stimulus conditions of ethnicity and sex, for the typically developing children in the sample. These show the trend in appraisal across each of the postures.



Possibly benign - Hands Folded and Hands in Pockets – scoring patterns in TD sample



Possibly ambivalent - Arms Folded and Hands on Hips – scoring patterns in TD sample

2.11. INFERENCE ANALYSIS STUDY 2A

Ordinal Scale – 6 categories

Differences between postures:

POSTURES: 6-CATEGORY (N=242)	Mean	Std. Deviation	Min	Max
Hands Folded	3.1997	0.7783	1.00	6.00
Hands on Hips	4.7335	1.1893	1.00	6.00
Hands in Pockets	3.2369	0.6071	1.00	5.00
Arms Folded	4.5138	0.4342	1.75	5.20

WILCOXON	Hands Hips vs Hands Folded	Arms Folded vs Hands Hips	Hands Pockets vs Hands Hips	Arms Folded vs Hands Pockets	Arms Folded vs Hands Folded	Hands Pockets vs Hands Folded
Z	-11.165	-4.156	-11.054	-13.094	-12.648	-1.222
Sig (2 tailed)	.000	.000	.000	.000	.000	.000

Gender differences in Posture appraisal:

	GENDER	N	MEAN RANK
All Hands Folded - 6 Categories	Male	121	122.03
	Female	119	118.94
All Hands on Hips - 6 categories	Male	121	111.24
	Female	119	129.92
All Hands in Pockets - 6 categories	Male	121	115.54
	Female	119	125.54
All Arms Folded - 6 categories	Male	120	121.45
	Female	119	118.54

	All Hands Folded - 6 Categories	All Hands on Hips - 6 categories	All Hands in Pockets - 6 categories	All Arms Folded - 6 categories
Chi-Square	.120	4.433	1.267	.110
df	1	1	1	1
Asymp. Sig.	.729	.035	.260	.741

Gender/Stimulus differences in appraisal:

ETHNICITY OF POSTURES: 6 CATEGORY (N=242)	Mean	Std. Deviation	Min	Max.
Boy Black all Postures	4.1436	0.5323	2.00	5.25
Girl Black all Postures	3.9559	0.5806	2.25	5.00
Girl White all Postures	3.7534	0.6114	2.00	5.00
Boy White all Postures	3.8282	0.6275	2.25	5.25

WILCOXON	Girl Black vs Boy Black	Girl White vs Boy Black	Boy White vs Boy Black	Boy White vs Girl Black	Boy White vs Girl White	Girl White vs Girl Black
Z	-4.274	-7.400	-6.590	-2.741	-1.915	-4.573
Sig (2 tailed)	.000	.000	.000	.006	.056	.000

Interactions between gender of stimulus and gender of participants; ethnicity of stimulus and ethnicity of participant. Black children rated as more negative overall:

ETHNICITY OF POSTURES: 6 CATEGORY (N=242)	Mean	Std. Deviation	Min	Max.
Black all Postures	4.0498	0.4421	2.17	5.00
White all Postures	3.7908	0.5041	2.25	4.88

White children appraised Black presentations as more negative than White presentations:

WHITE PARTICIPANTS: 6 CATEGORY (N=176)	Mean	Std. Deviation	Min	Max.
Black all Postures	4.0336	0.4548	2.17	5.00
White all Postures	3.7699	0.5277	2.25	4.88

Non-White children also appraised Black presentations as a whole as more negative in affect than White presentations:

NON-WHITE PARTICIPANTS: 6 CATEGORY (N=66)	Mean	Std. Deviation	Min	Max.
Black all Postures	4.0928	0.4063	3.25	4.88
White all Postures	3.8466	0.4337	2.50	4.75

Looking at Boy and Girl Presentations:

MALE VS FEMALE STIMULI: 6 CATEGORY (N=242)	Mean	Std. Deviation	Min	Max.
Boy Postures	3.9859	0.4596	2.38	4.88
Girl Postures	3.8547	0.4854	2.13	5.00

Males alone viewing Boy and girl presentations:

MALE PARTICIPANTS VIEW MALE VS FEMALE STIMULI: 6 CATEGORY (N=121)	Mean	Std. Deviation	Min	Max.
Boy Postures	3.9718	0.4654	2.83	4.88
Girl Postures	3.7937	0.5100	2.13	4.88

Females alone viewing Boy and Girl presentations:

FEMALE PARTICIPANTS VIEW MALE VS FEMALE STIMULI: 6 CATEGORY (N=119)	Mean	Std. Deviation	Min	Max.
Boy Postures	4.0105	0.4516	2.38	4.88
Girl Postures	3.9111	0.4539	2.75	5.00

ETHNICITY: Non-whites and Gender presentations:

NON-WHITES VIEW MALE VS FEMALE STIMULI: 6 CATEGORY (N=66)	Mean	Std. Deviation	Min	Max.
Boy Postures	4.0524	0.4051	3.13	4.75
Girl Postures	3.8870	0.4930	2.88	4.88

Whites and Gender presentations:

WHITES VIEW MALE VS FEMALE STIMULI: 6 CATEGORY (N=176)	Mean	Std. Deviation	Min	Maxi
Boy Postures	3.9609	0.4771	2.38	4.88
Girl Postures	3.8426	0.4833	2.13	5.00

Males appraising ethnicity of stimulus:

MALES VIEW WHITE VS BLACK STIMULI: 6 CATEGORY (N=121)	Mean	Std. Deviation	Min	Max
Black Postures	4.0045	.4381	3.00	5.00
White postures	3.7610	.5459	2.25	4.88

Females rating ethnicity of stimulus:

FEMALES VIEW WHITE VS BLACK STIMULI: 6 CATEGORY (N=119)	Mean	Std. Deviation	Min	Max
Black Postures	4.0998	0.4436	2.17	5.00
White postures	3.8218	0.4626	2.50	4.75

IntentionalityNumbers choosing intentionality overall:

GROUP	SUB GROUP	NUMBER SCORING FOR INTENTIONALITY
Ethnicity as 2 Groups	White	174
	Non-White	66
Gender	Male	121
	Female	119
Year at School - 2 Groups	Younger Years 3-4	115
	Older Years 5-6	125

Means table for all age groups and mean intentionality scores:

ETHNICITY	GENDER	YEAR GROUPS - OLDER AND YOUNGER	Mean	Std. Deviation	N
White	Male	Younger Years 3-4	3.1489	2.0214	47
		Older Years 5-6	2.9512	1.9615	41
		Total	3.0568	1.9848	88
	Female	Younger Years 3-4	2.6000	1.6432	45
		Older Years 5-6	3.2143	1.5067	42
		Total	2.8966	1.5997	87
	Total	Younger Years 3-4	2.8804	1.8566	92
		Older Years 5-6	3.0843	1.7405	83
		Total	2.9771	1.8002	175
Non-White	Male	Younger Years 3-4	2.6154	2.3643	13
		Older Years 5-6	3.0952	1.7862	21
		Total	2.9118	2.0056	34
	Female	Younger Years 3-4	1.4000	2.2211	10
		Older Years 5-6	3.7273	1.4859	22
		Total	3.0000	2.0320	32
	Total	Younger Years 3-4	2.0870	2.3338	23
		Older Years 5-6	3.4186	1.6509	43
		Total	2.9545	2.0033	66
Total	Male	Younger Years 3-4	3.0333	2.0909	60
		Older Years 5-6	3.0000	1.8904	62
		Total	3.0164	1.9833	122
	Female	Younger Years 3-4	2.3818	1.8001	55
		Older Years 5-6	3.3906	1.5078	64
		Total	2.9244	1.7181	119
	Total	Younger Years 3-4	2.7217	1.9759	115
		Older Years 5-6	3.1984	1.7112	126
		Total	2.9710	1.8538	241

Multivariate ANOVA – Intentionality Choices: main effects and interactions between groups:

VARIABLE	df	Mean Square	F	Sig.
Yeargroup	1	27.779	8.358	.004
Gender	1	1.847	.556	.457
Ethnicity (2 groups)	1	2.902	.873	.351
Yeargroup * Gender	1	20.280	6.102	.014
Yeargroup * Ethnicity (2 groups)	1	16.457	4.951	.027
Gender * Ethnicity (2 groups)	1	.336	.101	.751
Yeargroup * Gender * Ethnicity (2 groups)	1	2.674	.804	.371

Difference for ethnicity of stimulus or sex of stimulus: Female and male postures over full sample:

INTENTIONALITY BY SEX OF STIMULUS AND PARTICIPANT	N	Mean	Std. Deviation	Min	Max.
Intentionality occurrences – Female	243	1.42	1.17	0	5
Chose 8 – Female stimulus	243	.77	.82	0	3
Chose 1 – Female stimulus	243	.65	.86	0	4
Intentionality occurrences – Male	243	1.47	1.11	0	5
Chose 8 – Male stimulus	243	.89	.86	0	3
Chose 1 – Male stimulus	243	.58	.80	0	3

WILCOXON	Intentionality occurrences male vs female postures	Chose 8 Male vs Female	Chose 1 Male vs Female
Z	-11.165	-4.156	-11.054
Sig (2 tailed)	.000	.000	.000

Black and White postures over full sample:

INTENTIONALITY BY ETHNICITY OF STIMULUS AND PARTICIPANT	N	Mean	Std. Deviation	Min	Max.
Intentionality occurrences – Black	243	1.30	1.05	0	5
Chose 1 – Black stimulus	243	.55	.75	0	3
Chose 8 – Black stimulus	243	.75	.82	0	3
Intentionality occurrences – White	243	1.60	1.19	0	5
Chose 1 – White stimulus	243	.69	.84	0	3
Chose 8 – White stimulus	243	.91	.85	0	3

WILCOXON	Intentionality occurrences White vs Black presentations	Chose 1 White vs Black	Chose 8 White vs Black
Z	-4.185	-2.353	-2.813
Sig (2 tailed)	.000	.000	.005

Male participants only – result for ethnicity of stimulus:

WILCOXON	Intentionality occurrences White vs Black presentations MALE ONLY	Chose 1 White vs Black	Chose 8 White vs Black
Z	-2.686	-1.658	-1.709
Sig (2 tailed)	.007	.097	.088

And for sex of stimulus:

WILCOXON	Intentionality occurrences Male vs Female postures MALE ONLY	Chose 8 Male vs Female	Chose 1 Male vs Female
Z	-.165	-1.709	-1.404
Sig (2 tailed)	.869	.088	.160

Female participants only – result for ethnicity of stimulus:

WILCOXON	Intentionality occurrences White vs Black presentations FEMALE ONLY	Chose 1 White vs Black	Chose 8 White vs Black
Z	-3.107	-1.565	-2.183
Sig (2 tailed)	.002	.118	.029

And for sex of stimulus:

WILCOXON	Intentionality occurrences Male vs Female postures FEMALE ONLY	Chose 8 Male vs Female	Chose 1 Male vs Female
Z	-.661	-1.293	-.724
Sig (2 tailed)	.508	.196	.469

White participants only: Rating White and Black stimuli:

INTENTIONALITY White Participants and Ethnicity of Stimulus	N	Mean	Std. Deviation	Min	Max.
Intentionality occurrences – Black	176	1.34	1.07	0	5
Chose 1 – Black stimulus	176	.59	.795	0	3
Chose 8 – Black stimulus	176	.75	.81	0	3
Intentionality occurrences – White	176	1.59	1.18	0	5
Chose 1 – White stimulus	176	.72	.87	0	3
Chose 8 – White stimulus	176	.86	.84	0	3

WILCOXON	Intentionality occurrences WHITE ONLY	Chose 1 White vs Black	Chose 8 White vs Black
Z	-2.895	-1.795	-1.643
Sig (2 tailed)	.004	.073	.100

Rating Girl and Boy stimuli:

INTENTIONALITY White Participants and Sex of Stimulus	N	Mean	Std. Deviation	Min	Max.
Intentionality occurrences – Black	176	1.44	1.13	0	5
Chose 8 – Black stimulus	176	.76	.81	0	2
Chose 1 – Black stimulus	176	.68	.86	0	4
Intentionality occurrences – White	176	1.48	1.12	0	5
Chose 8 – White stimulus	176	.86	.85	0	3
Chose 1 – White stimulus	176	.63	.83	0	3

WILCOXON	Intentionality occurrences WHITE ONLY	Chose 1 Male vs Female	Chose 8 Male vs Female
Z	-.540	-.808	-1.434
Sig (2 tailed)	.590	.419	.152

Non-white participants only Rating White and Black stimuli:

INTENTIONALITY Non-White Participants and Ethnicity of Stimulus	N	Mean	Std. Deviation	Min	Max.
Intentionality occurrences – Black	67	1.19	.99	0	4
Chose 1 – Black stimulus	67	.45	.63	0	2
Chose 8 – Black stimulus	67	.75	.84	0	2
Intentionality occurrences – White	67	1.63	1.24	0	5
Chose 1 – White stimulus	67	.60	.74	0	2
Chose 8 – White stimulus	67	1.03	.89	0	3

WILCOXON	Intentionality occurrences NON-WHITE ONLY	Chose 1 Male vs Female	Chose 8 Male vs Female
Z	-3.426	-1.877	-2.794
Sig (2 tailed)	.001	.061	.005

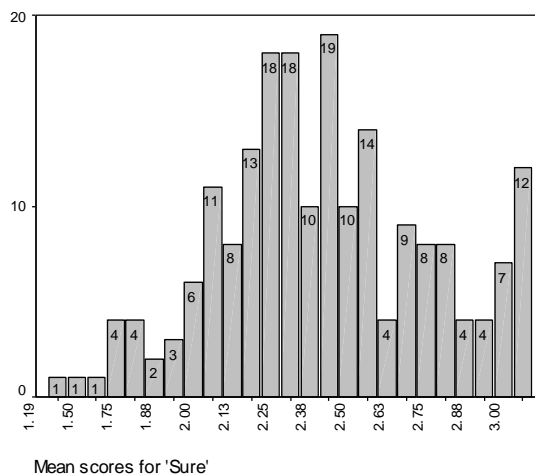
Rating Girl and Boy stimuli:

INTENTIONALITY Non-White Participants and Sex of Stimulus	N	Mean	Std. Deviation	Min	Max.
Intentionality occurrences – Female	67	1.39	1.27	0	5
Chose 8 – Female stimulus	67	.81	.86	0	3
Chose 1 – Female stimulus	67	.58	.86	0	3
Intentionality occurrences – Male	67	1.43	1.09	0	4
Chose 8 – Male stimulus	67	.97	.89	0	3
Chose 1 – Male stimulus	67	.46	.70	0	3

WILCOXON	Intentionality occurrences NON-WHITE ONLY	Chose 1 Male vs Female	Chose 8 Male vs Female
Z	-.121	-1.061	-1.607
Sig (2 tailed)	.904	.289	.108

Certainty of Choice

Choice	Never	Total	Male Never	Male Chose	Female Never	Female Chose
Very Sure	11	230	5	117	6	113
Quite Sure	16	225	7	115	9	110
Not Sure	108	113	56	66	52	67



2.12. ANALYSIS OF STUDY 2B – EMOTIONAL FACES

Differences in ability to chose target emotion

No group differences in ability to choose target emotion (mean score):

TEST	GROUP	df		F	Sig
		Between	Within		
ANOVA	Gender	1	238	.204	.652
	Age	3	238	.969	.408
TEST	GROUP			Z	Sig
Wilcoxon	Ethnicity (2 Groups)			-1.782	.73

Significant difference between ethnic groups in ability to assess target emotion:

ETHNICITY GROUPS TARGET EMOTION)		N	Mean	Std. Deviation	Min	Max.
Boy 1	White	176	2.78	.62	0	3
	Non-White	66	2.97	.17	2	3
Boy 2	White	176	2.80	.57	0	3
	Non-White	65	2.97	.17	2	3
Girl 1	White	175	2.50	.74	0	3
	Non-White	66	2.48	.77	0	3
Girl 2	White	171	2.80	.44	0	3
	Non-White	63	2.86	.40	1	3

WILCOXON	Boy 1 Emotion	Boy 2 Emotion	Girl 1 Emotion	Girl 2 Emotion
Z	-2.477	-2.297	-0.034	-1.043
Sig (2 tailed)	0.013	0.022	0.973	0.297

But not for year groups:

KRUSKAL WALLIS (df3)	Boy 1 Emotion	Boy 2 Emotion	Girl 1 Emotion	Girl 2 Emotion
Z	1.191	0.615	3.569	3.883
Sig (2 tailed)	0.755	0.893	0.312	0.274

Or gender:

WILCOXON	Boy 1 Emotion	Boy 2 Emotion	Girl 1 Emotion	Girl 2 Emotion
Z	-0.176	-0.587	-0.194	-0.463
Sig (2 tailed)	0.860	0.557	0.846	0.643

Correlation between reasons for change:

SPEARMAN'S	Boy Reasons (n=239)	
	Correlation	Sig
Girl Reasons (n=236)	0.493	.000

Girl reasons correlate with picture 1 only:

SPEARMAN'S	Girl Reasons		Emotion Girl 1	
	Correlation	Sig	Correlation	Sig
Emotion – Girl 1	0.139	.033		
Emotion – Girl 2	-0.077	.243	-0.107	.105

Boy reasons do not correlate – but pictures 1 and 2 correlate:

SPEARMAN'S	Boy Reasons		Emotion Boy 1	
	Correlation	Sig	Correlation	Sig
Emotion – Boy 1	-0.114	0.79		
Emotion – Boy 2	0.087	.180	.228	.000

Significant difference in age groups in reasons for change:

	Year at School (2 Groups)	N	Mean Rank
Boy Reasons	Younger 3-4	113	101.54
	Older 5-6	126	136.56
Girl Reasons	Younger 3-4	111	93.77
	Older 5-6	125	140.46

WILCOXON	Boy Reasons	Girl Reasons
Z	-4.570	-5.672
Sig (2 tailed)	0.000	0.000

And ages:

Age	Boy Reasons						Girls Reasons					
	6	7	8	9	10	11	6	7	8	9	10	11
Mean Rank	47.25	95.18	108.75	134.63	136.72	135.59	71.25	79.11	108.27	127.33	142.84	147.02

KRUSKAL WALLIS	Boy Reasons	Girl Reasons
Chi-Square	26.134	37.409
df	5	5
Asymp Sig	0.000	0.000

APPENDIX 3: STUDY 3

3.1. ETHICAL APPROVAL

Psychology Curriculum Group

REQUEST FOR ETHICAL APPROVAL

No study may proceed until this form has been signed by an authorised person, indicating that ethical approval has been granted.

This form should be accompanied by any other relevant materials, (e.g. a copy of the research protocol, questionnaire to be employed, letters to participants/institutions, advertisements or recruiting materials, information sheet for participants¹, consent form², or other.)

Name of principal investigator: Jackie Meredith

Name of supervisor/tutor: Dr. Mark Coulson

Name(s) of student collaborator(s), if any:

TITLE OF STUDY

The role of deficits in affective perception and recognition, and distortions in interpersonal affect (emotional intelligence), in behaviour disturbance in primary-aged school children.

Please give a brief description of the nature of the study, including details of the procedure to be employed. Identify the ethical issues involved, particularly in relation to the treatment/experiences of participants, session length, procedures, stimuli, responses, data collection, and the storage and reporting of data.

MORPHO is a child version of an in-house Visual Basic interface activity using facial morphology. It is to be administered within the classroom or other in-school setting, with instruction by the Headteacher or class teacher, as desired by the individual school. Should the school wish the researcher to administer the activity, this will be arranged. Instructions will be in a standardised, written form to enable each child to complete the activity in the same environment. After completing the activity (which requires two independent sessions) the child will be fully debriefed by the researcher or the teacher involved. In most cases the activity will be used to engage the child in a discourse about how we recognise emotion in facial expressions and that this will be part of the curriculum of Emotional Literacy development.

MORPHO is to be used with a mixed population of Primary aged school-children in years 3 to 6 (ages 7 to 11). Informed consent will be obtained by the school from parents and child. Children will be fully briefed about what they have to do in line with ethical requirements, and their option to discontinue the task at any time will be made clear. MORPHO is envisaged to be a pleasant experience for the child. Testing will take place in the familiar environment of the child's school.

MORPHO comprises a screen interface with a slider and a picture that 'morphs' (adapts/changes gradually) from one facial expression to another. The expressions will range from neutral to an emotion or from one emotion to another. The child will use two keyboard characters, < and >, to move a slider under each picture frame. This can be seen in the Appendix to this form. As the slider moves the picture will gradually change from one expression to another. The child is required to mouse click on a "Can't Tell" button when they are uncertain what the expression is. At this point the screen will change to present the

next picture.

The child will have three practice trials with instructions on how to use MORPHO before the main activity commences. All faces are adult faces at this time with recognisable universal facial expressions as identified by Ekman. The activity is comprised of 13 trials, for which the child will be given as much time as they need to make a decision. The child will repeat the activity within a few days of the initial administration in order to check for consistency of responses. This second run of the activity has a further 13 trials going in different emotional “directions”. This makes a total of 26 trials. It is envisaged that each session will not take more than 20-30 minutes, depending on how many questions the child has about the activity during debriefing.

Data will be stored in a text file, which will be transmitted to the researcher by means of email. The information sent to the researcher will be entirely anonymous but the file name will be designed to enable the text file to be recognised by unique number, school, gender, ethnicity, behavioural status, age and year group. Once data are received by the researcher they will be imported into EXCEL and from there into SPSS for statistical analysis.

Screenshots of MORPHO highlighting some of the features appear as an Appendix to this document. Parent/child information sheets, parent/child consent forms and administration instructions are attached.

How does the proposed study contribute to knowledge?

By examining children’s ability to discriminate between facially expressed emotions it will be possible to see whether they are emotionally perceptive or whether they find it hard to tell. The range of responses from the control population of well-adapted, normally functioning school children will be compared to the responses of children with behavioural problems or Special Educational Needs. It is envisaged that this activity will not only help schools (along with the researcher) to examine how children see others but to give the school an opportunity to tutor the child on ways to read facial expression in others.

Results from activity will be compared with the results of the Picture Pack test. Whereas the Picture Pack tests whether children with behavioural problems are attributing confrontational and angry emotions more readily and with more confidence than other children, MORPHO will test how good children are at determining facial emotions.

Once standardised MORPHO will be used along with other tests to examine differences in response and appraisal in children with behavioural problems. It is intended that this will identify possible deficiencies in emotional knowledge occurring in this population. This is a novel test it is hoped that eventually it will be supplemented with pictures of child faces.

Using the computer for this activity means that assessments will have to be individual rather than class activities. However it will still be possible to keep a normal school environment for the child, rather than it feeling like a “test” scenario.

2. Could any of the procedures that you are proposing to adopt result in any adverse reactions?

YES/NO

If “yes”, what precautionary steps are to be taken?

3. Will any form of deception be involved that raises ethical issues? (Most studies in psychology involve a mild degree of deception insofar as participants are unaware of the experimental hypotheses being tested. Deception becomes unethical if participants are likely to feel angry or humiliated when the deception is revealed to them.) **YES/NO**

4. If participants other than Middlesex University students are to be involved, where do you intend to recruit them?

From schools in the Greater London, Barnet and Essex area. These schools will represent a range of child populations, including those with a high proportion of E2L (English as second-language) children and Church of England schools.

5. Does the study involve
 Clinical populations YES/NO
 Children (under 16 years) YES/NO
 Vulnerable adults such as individuals with mental health problems,
 learning disabilities, prisoners, elderly, young offenders? YES/NO

6. How, and from whom, will informed consent be obtained (see *consent guidelines*²)?

From parents and children (forms attached)

7. Will you inform participants of their right to withdraw from the research at any time, without penalty (see *consent guidelines*²) YES/NO

8. Will you provide a full debriefing at the end of the data collection phase (see *debriefing guidelines*³) YES/NO

9. Will an opportunity exist to discuss the study with the participants to monitor any negative effects or misconceptions? YES/NO
 If “yes”, how do you propose to deal with such problems?
Not really – see attached sheet

10. Under the Data Protection Act, information about a participant is confidential unless otherwise agreed in advance. Will confidentiality be guaranteed? YES/NO
 If “yes”, how will this be assured? If “no”, how will participants be warned?

Children will be identified only by ID number, school number and date of birth. Any published results of this study will not identify any of the participants or the schools from which they originated.

(NB: You are not at liberty to publish material taken from your work with individuals without the prior agreement of those individuals).

11. Are there any ethical issues which concern you about this particular piece of research, not covered elsewhere on this form? YES/NO
 If “yes” please specify:

(NB: If “yes” has been responded to any of questions 2, 3, 5, 11 or “no” to any of questions 7-10, a full explanation of the reason should be provided on a separate sheet, and submitted with this form).

I have read the British Psychological Society’s *Ethical Principles for Conducting Research with Human participants*⁴ and believe this proposal to conform with them.

Researcher..... date

Signatures of approval:

Supervisor..... date

Ethics Committee..... date

(approval granted for the study to proceed)

^{1,2,3,4} **Guidelines are available from the Ethics page of SOCNET**

REASONS FOR INVOLVEMENT OF CHILDREN UNDER 16 YEARS.

REF:

5. Does the study involve:

Children (under 16 years)

YES/NO

As this study is setting out to examine emotional knowledge in primary aged school-children, it is necessary to carry out this research with children aged under 16 years.

Full parental consent will be obtained for all participants, along with child consent. Information sheets explaining the study and its purpose will be provided to both parents and children. Full standardised instructions will be given by the researcher. No names will be used in recording, analysis or publication of the statistics gathered in this study.

REASONS FOR NOT FULLY DEBRIEFING CHILDREN.

REF:

8. Will you provide a full debriefing at the end of the data collection phase
(*see debriefing guidelines*³)

YES/NO

As the activity will be provided on a CDROM and will take place during school time and at the discretion of the Headteacher, it is anticipated in most cases that the researcher will not be present at the time of administration. The Headteacher and members of staff involved in the project will be fully advised on how to debrief the children following the activity. This will include giving the children a verbal opportunity at the end of the test to say what they thought of MORPHO. In addition the child will be given the opportunity to express, by choosing a “smiley/neutral/cross” face icon, whether they liked the test, were not sure, or did not like it.

There is no deception involved in this activity, where we are asking children to decide what emotion is being displayed on a face. As this is a study taking place within a general school population it is not deemed necessary to acquaint the children with all the underlying aspects of this study.

REASONS FOR NOT DISCUSSING THE STUDY WITH THE PARTICIPANTS

REF:

9. Will an opportunity exist to discuss the study with the participants to
monitor any negative effects or misconceptions?

YES/NO

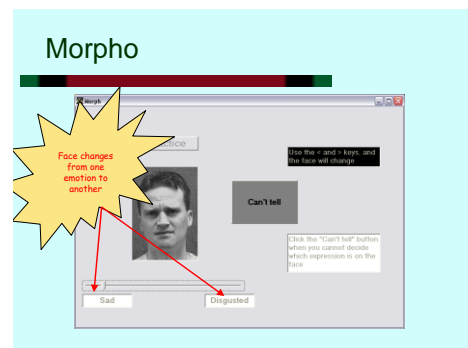
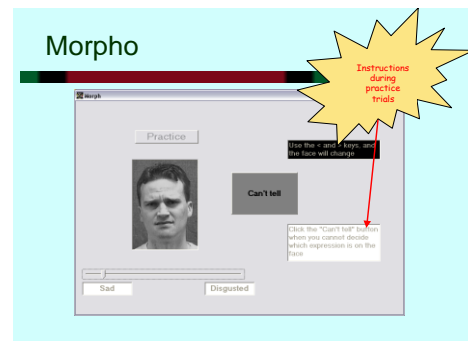
All participants and parents will be given information sheets prior to the study and invited to ask questions beforehand. Participants will be informed of their right to withdraw from the investigation at any time. The children will also be given an opportunity at the end of the test to say what they thought of it.

In the case of MORPHO the Headteacher of the school will be available to discuss the study with participant's parents, should they so wish. It is not predicted that any negative effects or misconceptions will arise throughout this process but in any case the teacher or Headteacher administering the activity will be debriefing the child. Staff at the schools concerned will be fully briefed by the researcher at a meeting prior to the testing, so that they will be fully acquainted with the study and able to reassure the parents and children, particularly with regard to anonymity, should the occasion arise.

APPENDIX

MORPHO for child participants.

Screenshots below illustrate the operation of the MORPHO programme



3.2. CONSENT AND INFORMATION SHEETS

Middlesex University

CHILDREN'S CONSENT FORM

I am happy to take part in the research activities.

Name

School

I understand that my name will not be given to anyone else.

I have read the information sheet.

I know that I don't have to continue if I don't want to.



Signed **Date**

Witnessed by member of teaching staff

Signed **Date**

RESEARCHER'S STATEMENT

The nature, demands and foreseeable risks of the research were explained to the participant.

Signed by

Date

MIDDLESEX UNIVERSITY RESEARCH STUDY

INFORMATION SHEET FOR CHILDREN

MORPHO CHANGING FACES ACTIVITY

Your school is trying out a new computer activity called 'MORPHO'. We need your permission and your parent's permission for you to take part in this activity, as the results from children who take part will be used in research. This sheet is to tell you about MORPHO.

☺ **What is MORPHO?**

MORPHO a computer game where faces - like the one in the picture - will change when you press keys on the keyboard. You will press a key when you are not sure what feeling the face is showing. At the end you will be asked whether you liked MORPHO or not.



☺ **Why is this study being done?**

To know more about how children like you recognise feelings in faces.

☺ **Where will I do MORPHO?**

In your Class or IT room, with the researcher or one of your teachers. It should take between 15 and 20 minutes.

☺ **What if I change my mind and don't want to carry on?**

If you decide you don't want to finish the activity, tell your teacher and you can stop. However, we would like you to have at least one go of MORPHO, or we won't know what you think of it.

☺ **Will anyone see my results?**

Only your teacher and the researcher. The information needed for research will be kept anonymous and confidential - that means no one will know it was from you.

If you and your parents are happy for you to try MORPHO you will be asked to sign a 'consent form' with your teacher before you start. It says that you have read this sheet and choose to do the MORPHO activity.

Thank you for reading this!

*** All proposals for research using human subjects are reviewed by an Ethics Committee before they can proceed. The Middlesex Psychology Department's Ethics Committee have reviewed this proposal. ***

EMOTIONAL LITERACY PROJECT



PARENT CONSENT FORM - MORPHO

CONSENT FOR DATA TO BE USED IN RESEARCH STUDY BY MIDDLESEX UNIVERSITY

I am happy for my child's school to use the MORPHO changing faces activity and that information will be sent to Middlesex University as part of the Emotional Literacy Project.

Name of Parent:

Name of child:

School:

Head Teacher:

Class / Class Teacher:

I confirm that I have read the information sheet and understand the nature of the research. My child's part in this study has been made clear and I understand that his/her name will not be made public in any way, and that no names will be associated with the project. I also understand that my child can withdraw from the task if he or she is unwilling to continue for any reason.

Signed:

Date

**PLEASE RETURN THIS COMPLETED FORM TO YOUR CHILD'S SCHOOL.
THANK YOU.**

RESEARCH INFORMATION SHEET



Emotional Literacy Project - MORPHO



Your child's school has agreed to help with a study through which we hope to improve knowledge about children's understanding of emotions. The activity is an interactive computer programme called MORPHO designed for children. This programme will probably be used by your school as part of class activities to look at facial expression of emotion. In order to look at how children respond to emotional faces and to help Middlesex University develop the programme further a small text file of each child's responses will be produced when the programme is run. We would like your permission for this text file to be sent anonymously to Middlesex University. For research each child's age and gender will need to be identified but no names will be used in the research and everything will be anonymous.

Your child will be asked to respond to a series of pictures like the picture shown on the right which will change, when a slider is moved, from one expression to another. Your child will click a button at a point where they can't tell what the emotion is. There will also be a chance for your child to say whether or not they liked the activity. It should take between 15 and 20 minutes to complete the activity, which will take place in the classroom with your child's teacher or head teacher.



This activity is part of a wider study to gain information about children's emotional understanding. We hope it will help to improve life skills and the school environment for all children. Participation in this activity is not compulsory but we hope you will allow your child to take part by signing and sending back the consent form provided. Without families we cannot continue our research.

Thank you for reading this information sheet. Please also encourage your child to read the Children's information sheet.

MIDDLESEX UNIVERSITY – OFFICIAL STATEMENT

Participation in this study is entirely voluntary, and families should not feel under any pressure to participate in the research. Your child does not have to take part in this study, and may withdraw at any time without having to give a reason. The decision whether to take part or not will not affect your family or child in any way.

Declaration of Confidentiality:

All records for this project, whether written materials or computer records, will be kept securely. Participants will be identified by a serial number, and not their names. Where information is analysed for publication, only statistical trends will be reported, and there will be no disclosure of individual or identifiable information.

The research is being conducted under the direction of senior researchers. Should you have any concerns or questions about the research, please feel free to talk to your child's school or contact either member of the research team (Jackie Meredith, Researcher, or Dr. Mark Coulson, Research Supervisor) at:

Middlesex University
School of Health & Social Science
Queensway
Enfield,
Middlesex
EN3 4SF

Tel: 020 8411 6290 (Dr. Mark Coulson)

Tel: 020 8411 5420 (Jackie Meredith)

All proposals for research using human subjects are reviewed by an Ethics Committee before they can proceed. The Middlesex Psychology Department's Ethics Committee have reviewed and accepted this proposal.

3.3. MORPHO INSTRUCTIONS FOR CHILDREN

MORPHO - The CHANGING FACES Activity

In this activity you will be shown some faces on the computer screen.

Each face can change from one expression, like from this:



To this:



The face will change expression when you press one of two keys. These keys are < and > on the keyboard.



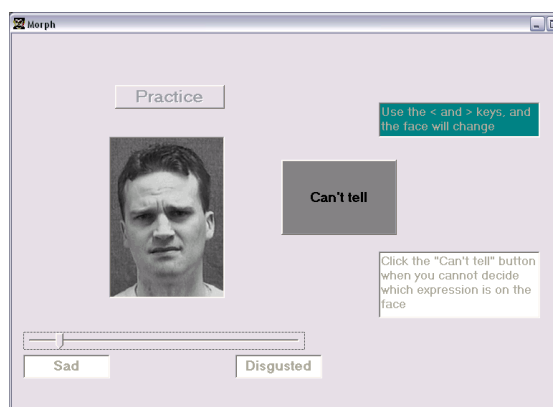
If you press < a slider under the picture will move to the left and the face will change.



If you press > the slider will move to the right and the face will change the other way.

- All you need to do is to decide at what point you **can't tell** what the expression is.
- When you can't decide, click the big button that says **Can't tell**
- You will then be shown the next face, which will change from one expression to another, just like the last one, but with different expressions.

The pictures below show what the **practice** and **activity** screens will look like:



Practice Screen



Activity Screen

- There are no right or wrong places to choose when you "Can't tell" - so don't worry.
- Just choose the point when it seems right for **you**.
- You will have 3 practice tries so that you can get used to which keys to press.
- You will need an adult to enter a File Name before you get going - then it's up to you!

We hope you enjoy **MORPHO**!

MORPHO

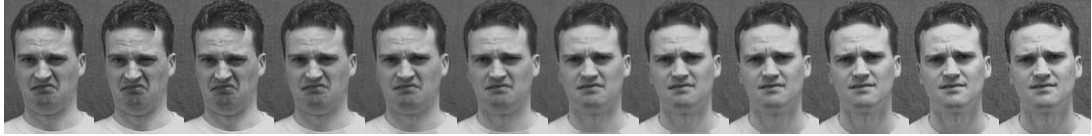
The CHANGING FACES Activity



INSTRUCTIONS FOR CHILDREN

3.4. MORPHO TRANSITIONS BY PICTURE

Practice 1 (Sad to Disgusted)



Practice 2 (Sad to Surprised)



Practice 3 (Scared to Surprised)



A (Happy to Sad)



B (Angry to Sad)



C (Angry to Fearful)



D (Angry to Nothing Much)



E (Fearful to Sad)



F (Happy to Nothing Much)



G (Surprised to Nothing Much)



H (Fearful to Happy)



I (Fearful to Surprised)



J (Fearful to Nothing Much)



K (Sad to Nothing Much)



L (Disgust to Nothing Much)

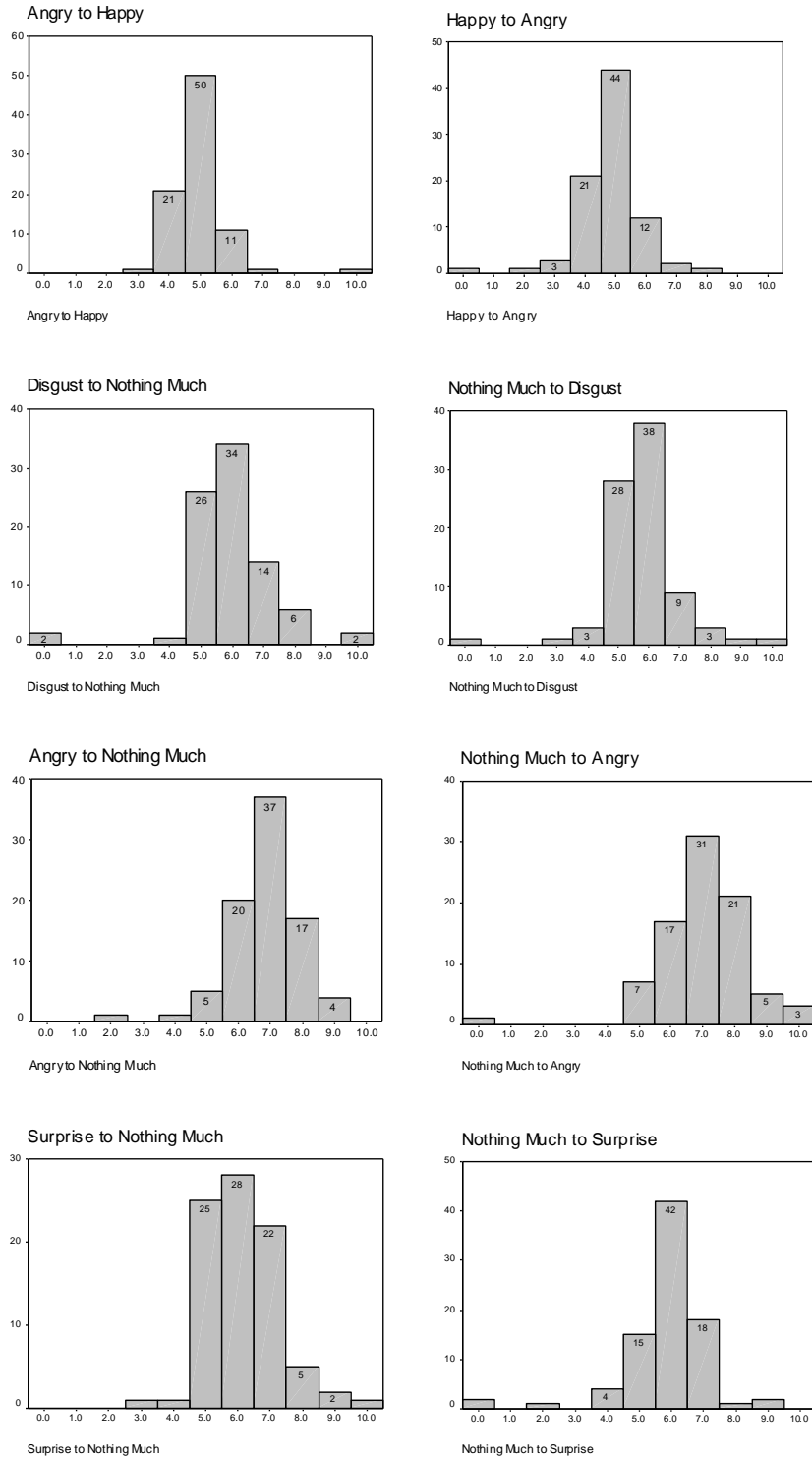


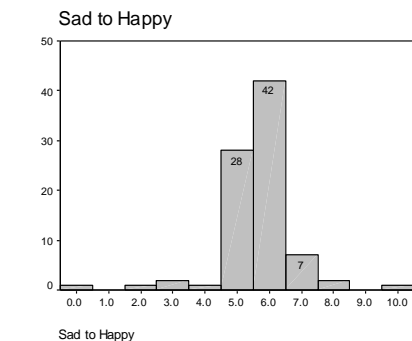
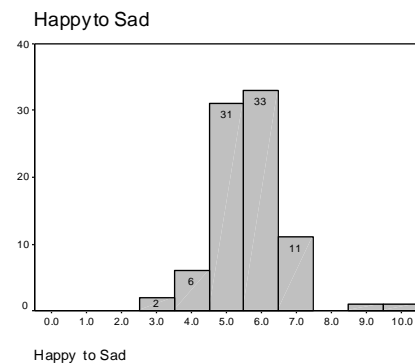
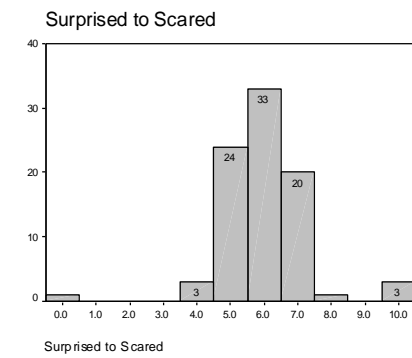
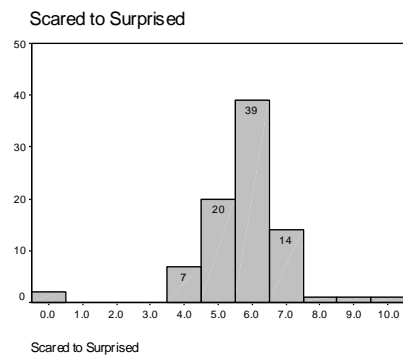
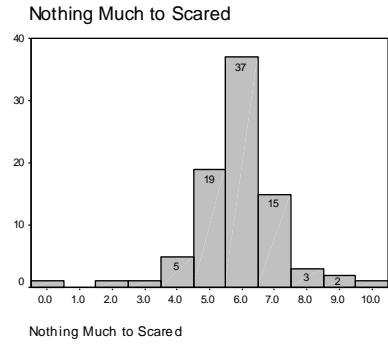
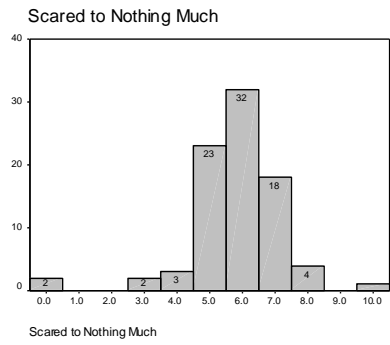
M (Angry to Happy)



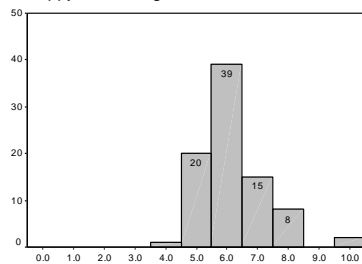
3.5. GRAPHICAL REPRESENTATION OF TRANSITIONS

Scores for each transitional pair of emotions across all participants:



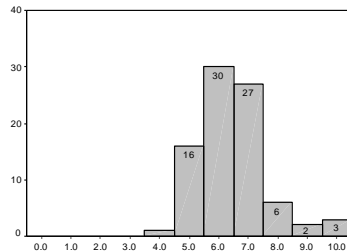


Happy to Nothing Much



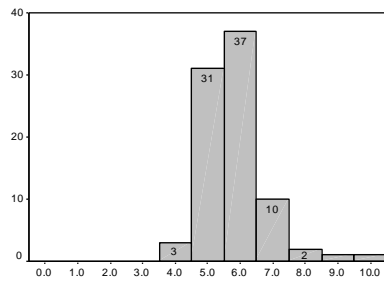
Happy to Nothing Much

Nothing Much to Happy



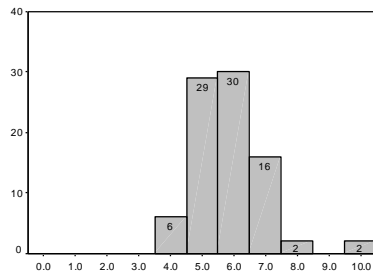
Nothing Much to Happy

Angry to Sad



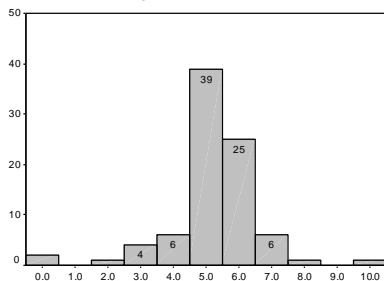
Angry to Sad

Sad to Angry



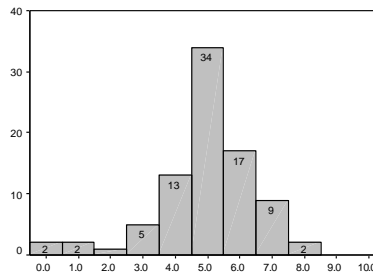
Sad to Angry

Sad to Nothing Much



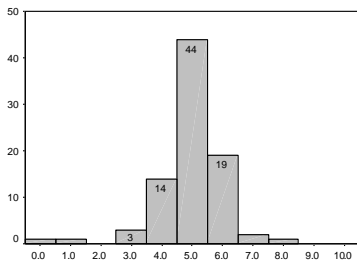
Sad to Nothing Much

Nothing Much to Sad



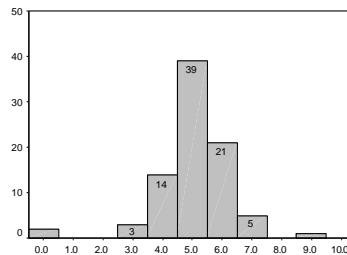
Nothing Much to Sad

Angry to Scared



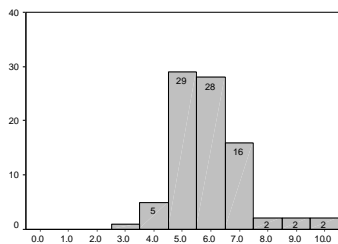
Angry to Scared

Scared to Angry



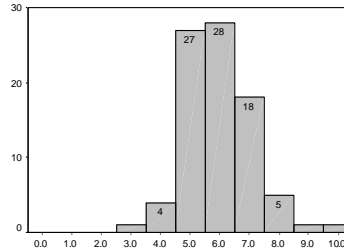
Scared to Angry

Scared to Sad



Scared to Sad

Sad to Scared



Sad to Scared

3.6. ANALYSIS – TRANSITION OF EMOTION

Paired Sample t-tests for 85 Participants – All transitional pairs:

PAIRED ITEMS	Paired Differences		t	df	Sig. (2-tailed)
	Mean	Std. Deviation			
Angry to Happy - Happy to Angry	.1294	1.2420	.961	84	.339
Disgust to Nothing Much - Nothing Much to Disgust	.1765	1.8072	.900	84	.371
Angry to Nothing Much - Nothing Much to Angry	-.1765	1.6488	-.987	84	.327
Surprise to Nothing Much - Nothing Much to Surprise	.2941	1.7101	1.586	84	.117
Scared to Nothing Much - Nothing Much to Scared	-0.0706	2.0747	-.314	84	.755
Scared to Surprised - Surprised to Scared	-.2471	1.7922	-1.271	84	.207
Scared to Happy - Happy to Scared	.2000	1.5103	1.221	84	.226
Happy to Sad - Sad to Happy	.0000	1.5040	.000	84	1.000
Happy to Nothing Much - Nothing Much to Happy	-.2588	1.5287	-1.561	84	.122
Angry to Sad - Sad to Angry	-0.0353	1.3043	-.249	84	.804
Sad to Nothing Much - Nothing Much to Sad	.2471	1.7037	1.337	84	.185
Angry to Scared - Scared to Angry	-0.0941	1.5324	-.566	84	.573
Scared to Sad - Sad to Scared	-0.0588	1.6062	-.338	84	.736

Consistency between pairs:

Emotional Transitions (N=85)	Mean	Std. Deviation
Angry to Happy	4.9412	0.8777
Happy to Angry	4.8118	1.0521
Disgust to Nothing Much	5.9294	1.4292
Nothing Much to Disgust	5.7529	1.2238
Angry to Nothing Much	6.8471	1.1181
Nothing Much to Angry	7.0235	1.3885
Surprise to Nothing Much	6.1412	1.1563
Nothing Much to Surprise	5.8471	1.3672
Scared to Nothing Much	5.8000	1.4293
Nothing Much to Scared	5.8706	1.3783
Scared to Surprised	5.7294	1.3662
Surprised to Scared	5.9765	1.3091
Scared to Happy	4.9412	1.1987
Happy to Scared	4.7412	1.1036
Happy to Sad	5.6353	1.0784
Sad to Happy	5.6353	1.2036
Happy to Nothing Much	6.2000	1.0889
Nothing Much to Happy	6.4588	1.1908
Angry to Sad	5.8118	0.9940
Sad to Angry	5.8471	1.1287
Sad to Nothing Much	5.2118	1.3809
Nothing Much to Sad	4.9647	1.5232
Angry to Scared	4.9647	1.1068
Scared to Angry	5.0588	1.2569
Scared to Sad	5.9059	1.2500
Sad to Scared	5.9647	1.1695

Consistency – possible group differences:

TOTAL CONSISTENCY SCORE	F	Sig.
Gender	.035	.852
School year	.792	.503
Ethnicity – 2 groups	.340	.562
Gender * School year	1.096	.357
Gender * Ethnicity – 2 groups	1.997	.162
School year * Ethnicity – 2 groups	.058	.982
Gender * School year * Ethnicity – 2 groups	.438	.726

Possible age group differences:

TOTAL CONSISTENCY SCORE	F	Sig.
Gender	.018	.894
Ethnicity (2 groups)	.429	.515
Age Group	3.472	.066
Gender * Ethnicity (2 groups)	1.646	.203
Gender * Age Group	1.814	.182
Ethnicity (2 groups) * Age Group	.134	.716
Gender * Ethnicity (2 groups) * Age Group	1.001	.320

Consistency:Gender differences in individual transitions:

CONSISTENCY	GENDER (M=36; F=49)	Mean	Std. Deviation	F (df 1,83)	Sig
Angry:Happy	Male	.1944	1.3054	.170	.682
	Female	.0816	1.2048		
Disgust:Nothing Much	Male	-.4167	2.0195	7.225	.009
	Female	.6122	1.5113		
Angry:Nothing Much	Male	-.0556	1.9412	.333	.565
	Female	-.2653	1.4109		
Surprise:Nothing Much	Male	.0833	1.5000	.948	.333
	Female	.4490	1.8491		
Scared:Nothing Much	Male	-.3889	2.1014	1.478	.227
	Female	.1633	2.0448		
Scared:Surprised	Male	-.2778	1.1367	.018	.893
	Female	-.2245	2.1628		
Scared:Happy	Male	.0277	1.8281	.810	.371
	Female	.3265	1.2313		
Happy:Sad	Male	-.1667	1.3202	.765	.384
	Female	.1224	1.6283		
Happy:Nothing Much	Male	-.0278	1.6816	1.434	.235
	Female	-.4286	1.3994		
Angry:Sad	Male	-.3611	1.1989	4.038	.048
	Female	.2041	1.3382		
Sad:Nothing Much	Male	.0556	1.9992	.787	.378
	Female	.3878	1.4551		
Angry:Scared	Male	-.2500	1.2042	.643	.425
	Female	.0204	1.7379		
Scared:Surprised	Male	-.1389	1.8997	.154	.696
	Female	.0000	1.3693		

Consistency – Year at School: Difference for Anger/Nothing Much:

YEAR GROUP	N	Mean	Std. Deviation
3.00	23	.4348	1.8544
4.00	17	-1.1176	2.0881
5.00	30	-.2000	1.2149
6.00	15	.0000	1.0690
ANOVA	df	F	Sig.
Year at School	3, 81	3.191	.028
TUKEY HSD	Mean Difference		Sig.
Year 3 / Year 4	1.5524		.016

But significant interaction – main effect lost:

ANGRY / NOTHING MUCH	df	F	Sig.
Gender	1, 69	1.802	.184
School year	3, 69	1.070	.368
Ethnicity – 2 groups	1, 69	.373	.543
Gender * School year	3, 69	1.429	.242
Gender * Ethnicity – 2 groups	1, 69	.267	.607
School year * Ethnicity – 2 groups	3, 69	1.553	.209
Gender * School year * Ethnicity – 2 groups	3, 69	6.540	.001

Total Consistency Scores: Age Group differences:

AGE GROUP	Mean	Std. Deviation	Minimum	Maximum
Years 3 and 4 (n=40)	5.9280	3.0440	1.73	12.57
Years 5 and 6 (n=45)	4.7249	1.8548	2.00	11.22
MANN-WHITNEY U	df	Z	Sig.	
Year Group Differences	1, 83	-1.370	.171	

Gender Effects: Gender of Stimulus v Gender of ParticipantGender differences:

FACIAL BLENDS Consistency Scores	Participant	N	Mean	Std. Deviation	ANOVA	
					F	Sig
Male blends only	Male	36	-.1444	.6855	1.552	.216
	Female	49	.0367	.6451		
Female blends only	Male	36	-.1250	.6381	4.355	.040
	Female	49	.1582	.6031		

Age Group Differences:

AGE GROUPS Consistency Scores	Participant	N	Mean	Std. Deviation	ANOVA	
					F	Sig
Male blends only	Years 3 and 4	40	.1150	.6986	4.269	.042
	Years 5 and 6	45	-.0400	.6646		
Female blends only	Years 3 and 4	40	.0375	.6871	.000	.992
	Years 5 and 6	45	.5832	-1.38		

Emotion blends against Emotion/Neutral blends:

PERSISTENCE OF EMOTION N=85	Mean	Std. Deviation	Wilcoxon	
			Z	Sig
Emotion/Emotion	5.0571	.6986	-.250	.803
Emotion/Nothing Much	5.0176	.4412		

Persistence – examination of pairs:

PERSISTENCE OF EMOTION IN EMOTION TO EMOTION PAIRS N=85	Mean	Std. Deviation	Paired T Tests	
			t (df 84)	Sig
Angry to Happy	4.9412	.8777	-1.531	.129
Happy to Angry	5.1882	1.0521		
Scared to Surprised	5.7294	1.3662	7.915	.000
Surprised to Scared	4.0235	1.3091		
Scared to Happy	4.9412	1.1987	-1.683	.096
Happy to Scared	5.2588	1.1036		
Happy to Sad	5.6353	1.0784	6.807	.000
Sad to Happy	4.3647	1.2036		
Angry to Sad	5.8118	.9940	9.103	.000
Sad to Angry	4.1529	1.1287		
Angry to Scared	4.9647	1.1068	.120	.905
Scared to Angry	4.9412	1.2569		
Scared to Sad	5.9059	1.2500	4.779	.000
Sad to Scared	4.9412	1.2569		
EMOTION TO NEUTRAL PAIRS (n=85)				
Disgust to Nothing Much	5.9294	1.4292	7.942	.000
Nothing Much to Disgust	4.2471	1.2238		
Angry to Nothing Much	6.8471	1.1181	18.710	.000
Nothing Much to Angry	2.9765	1.3885		
Surprise to Nothing Much	6.1412	1.1563	9.815	.000
Nothing Much to Surprised	4.1529	1.3672		
Scared to Nothing Much	5.8000	1.4293	8.139	.000
Nothing Much to Scared	4.1294	1.3783		
Happy to Nothing Much	6.2000	1.0889	14.469	.000
Nothing Much to Happy	3.5412	1.1908		
Sad to Nothing Much	5.2118	1.3809	.691	.492
Nothing Much to Sad	5.0353	1.5232		

Emotion to Neutral Face:

PERSISTENCE OF EMOTION N=85	Mean	Std. Deviation	Paired t Test	
			t	Sig
Nothing much as Original Emotion	4.0137	.7814	-15.697	.000
Nothing much as Target Emotion	6.0216	.6885		

Different types of emotional transition – effects of gender, age group or ethnic group:

EMOTION/EMOTION Transitions	<i>F</i> (df 1, 85)	Sig.
Ethnicity (2 groups)	.080	.778
Gender	2.370	.128
Age Group	1.836	.179
Ethnicity (2 groups) * Gender	.199	.657
Ethnicity (2 groups) * Age Group	.113	.738
Gender * Age Group	.211	.647
Ethnicity (2 groups) * Gender * Age Group	.593	.444

EMOTION/NEUTRAL Transitions	<i>F</i> (df 1,85)	Sig.
Ethnicity (2 groups)	.232	.631
Gender	2.101	.151
Age Group	.137	.713
Ethnicity (2 groups) * Gender	.587	.446
Ethnicity (2 groups) * Age Group	.297	.587
Gender * Age Group	.001	.975
Ethnicity (2 groups) * Gender * Age Group	.765	.384

POSITIVE/NEGATIVE Transitions	<i>F</i> (df 1,85)	Sig.
Ethnicity (2 groups)	.025	.876
Gender	.693	.408
Age Group	.510	.477
Ethnicity (2 groups) * Gender	.170	.681
Ethnicity (2 groups) * Age Group	.078	.780
Gender * Age Group	.016	.899
Ethnicity (2 groups) * Gender * Age Group	1.140	.289

NEGATIVE/NEGATIVE Transitions	<i>F</i> (df 1,85)	Sig.
Ethnicity (2 groups)	.090	.765
Gender	2.743	.102
Age Group	2.175	.144
Ethnicity (2 groups) * Gender	1.183	.280
Ethnicity (2 groups) * Age Group	.623	.432
Gender * Age Group	.712	.401
Ethnicity (2 groups) * Gender * Age Group	.050	.824

Anger and other emotions:

ITEMS RELATING TO ANGER (Mean Scores) N=85	Mean	Std. Deviation	Wilcoxon	
			Z	Sig.
Anger items - Target angry, no neutral transitions	4.7608	.7194	-4.627	.000
Non-Anger items – Target non-anger, no neutral transitions	5.1000	.4410		
Emotion to Neutral transitions, no anger	5.8565	.6843	-2.072	.038
Anger items - Target angry, no neutral transition	5.2392	.5108		
All anger transitions, no neutral transition	5.0000	.4123	-7.683	.000
Neutral face to emotion, no anger	4.2212	.7862		

EMOTION TO NEUTRAL: ANGER COMPARISONS	WILCOXON	
	Z	Sig. (2-tailed)
Angry to Nothing Much - Disgust to Nothing Much	-5.045	.000
Surprise to Nothing Much - Angry to Nothing Much	-4.355	.000
Scared to Nothing Much - Angry to Nothing Much	-5.827	.000
Happy to Nothing Much - Angry to Nothing Much	-4.449	.000
Sad to Nothing Much - Angry to Nothing Much	-6.672	.000
NEUTRAL TO EMOTION: ANGER COMPARISONS	Z	Sig. (2-tailed)
Nothing Much to Angry - Nothing Much to Disgust	-6.239	.000
Nothing Much to Surprised - Nothing Much to Angry	-5.285	.000
Nothing Much to Scared - Nothing Much to Angry	-6.137	.000
Nothing Much to Happy - Nothing Much to Angry	-3.660	.000
Nothing Much to Sad - Nothing Much to Angry	-7.301	.000

Fear and other emotions:

ITEMS RELATING TO FEAR (Mean Scores) N=85	Mean	Std. Deviation	Wilcoxon	
			Z	Sig
Fear items - Target scared, no neutral transitions	4.7971	.6262	-5.773	.000
Non-Fear items – Target non-scared, no neutral transitions	5.3794	.6322		
Emotion to Neutral transitions, no fear	6.0659	.7479	-1.678	.093
Fear to Neutral	5.8000	1.4293		
Neutral to fear	4.1294	13783	-1.092	.275
Neutral face to emotion, no fear	3.9906	.8011		

EMOTION TO NEUTRAL: FEAR COMPARISONS	WILCOXON	
	Z	Sig. (2-tailed)
Scared to Nothing Much - Disgust to Nothing Much	-.604	.546
Surprise to Nothing Much - Scared to Nothing Much	1.513	.130
Scared to Nothing Much - Angry to Nothing Much	-5.827	.000
Happy to Nothing Much - Scared to Nothing Much	-1.904	.057
Sad to Nothing Much - Scared to Nothing Much	-2.884	.004
NEUTRAL TO EMOTION: FEAR COMPARISONS	Z	Sig. (2-tailed)
Nothing Much to Scared - Nothing Much to Disgust	-.433	.665
Nothing Much to Surprised - Nothing Much to Scared	.344	.731
Nothing Much to Scared - Nothing Much to Angry	-6.137	.000
Nothing Much to Happy - Nothing Much to Scared	-3.430	.001
Nothing Much to Sad - Nothing Much to Scared	-4.368	.000

EMOTION TO EMOTION TRANSITIONS: FEAR COMPARISONS	WILCOXON	
	Z	Sig. (2-tailed)
Surprise to Scared vs Scared to Surprised	-6.157	.000
Happy to Scared vs Scared to Happy	-1.583	.113
Scared to Angry vs Angry to Scared	-.653	.514
Sad to Scared vs Scared to Sad	-4.483	.000

Possible Sex differences in all fear and anger options:

SEX DIFFERENCES IN FEAR AND ANGER	<i>F</i> (df 1,83)	Sig.
Neutral to Emotion, no Anger	3.240	.076
Emotion to Neutral, no Anger	.209	.648
Transitions towards Fear	.367	.546
All emotions from Anger, including Neutral	.113	.738
All emotions towards Anger, including Neutral	.369	.545
Fear to Neutral	3.377	.070
Neutral to Fear	.003	.957
Anger to Neutral	.240	.626
Neutral to Anger	.084	.772

Possible ethnicity differences in anger and fear options:

ETHNICITY DIFFERENCES IN FEAR AND ANGER	<i>F</i> (df 1,83)	Sig.
Neutral to Emotion, no Anger	2.276	.135
Emotion to Neutral, no Anger	1.804	.183
Transitions towards Fear	.069	.793
All emotions from Anger, including Neutral	.001	.974
All emotions towards Anger, including Neutral	.093	.761
Fear to Neutral	.635	.428
Neutral to Fear	.548	.461
Anger to Neutral	1.171	.282
Neutral to Anger	.115	.736

Anger vs Fear:

ANGER and FEAR COMPARISON	Mean (n=85)	Std. Deviation	Wilcoxon	
			Z	Sig.
Anger items: Transitions towards Anger	5.6853	.6582	-2.882	.004
Fear items: Transitions towards Scared	5.5035	.6036		

Mean Scoring – Gender of Stimulus:

GENDER OF STIMULUS	Mean (n=85)	Std. Deviation	Wilcoxon	
			Z	Sig.
Male Transitions	5.0706	.3725	-1.115	.265
Female Transitions	5.0191	.3152		

No global effect, no effects for ethnicity or gender but difference for age group in male faces:

GROUPING	SEX OF STIMULI	<i>F</i> (1, 77)	Sig.
Ethnicity (2 Groups)	Male transitions	.000	.998
	Female transitions	.049	.825
Age Group	Male transitions	4.367	.040
	Female transitions	.081	.777
Gender	Male transitions	2.716	.103
	Female transitions	3.728	.057
Ethnicity (2 Groups) * Age Group	Male transitions	.399	.530
	Female transitions	.220	.641
Ethnicity (2 Groups) * Gender	Male transitions	1.074	.303
	Female transitions	.277	.600
Age Group * Gender	Male transitions	.720	.399
	Female transitions	.011	.919
Ethnicity (2 Groups) * Age Group * Gender	Male transitions	.115	.735
	Female transitions	.011	.915

STIMULI COMPARISON			Mean		Std. Deviation		N	
Sex	Ethnicity 2 groups	Age group	Male Stimuli	Female Stimuli	Male Stimuli	Female Stimuli	Male Stimuli	Female Stimuli
Male	White	Years 3 and 4	5.0400	4.9313	.3204	.2724	10	10
		Years 5 and 6	4.8500	4.8750	.3082	.2016	6	6
	Non White	Years 3 and 4	5.0455	4.9602	.4108	.4492	11	11
		Years 5 and 6	5.0222	4.9583	.2539	.2830	9	9
	Total	Years 3 and 4	5.0429	4.9464	.3613	.3667	21	21
		Years 5 and 6	4.9533	4.9250	.2800	.2491	15	15
	Total	5.0056	4.9375	.3286	.3190	36	36	
Female	White	Years 3 and 4	5.3143	5.1161	.5304	.3396	14	14
		Years 5 and 6	5.0368	5.0592	.3578	.3356	19	19
	Non White	Years 3 and 4	5.2000	5.0500	.2000	.2044	5	5
		Years 5 and 6	4.9727	5.0795	.2370	.2532	11	11
	Total	Years 3 and 4	5.2842	5.0987	.4634	.3057	19	19
		Years 5 and 6	5.0133	5.0667	.3159	.3035	30	30
		Total	5.1184	5.0791	.3983	.3016	49	49
Total	White	Years 3 and 4	5.2000	5.0391	.4672	.3207	24	24
		Years 5 and 6	4.9920	5.0150	.3499	.3152	25	25
	Non White	Years 3 and 4	5.0938	4.9883	.3586	.3841	16	16
		Years 5 and 6	4.9950	5.0250	.2395	.2670	20	20
	Total	Years 3 and 4	5.1575	5.0188	.4254	.3436	40	40
		Years 5 and 6	4.9933	5.0194	.3026	.2916	45	45
	Total	5.0706	5.0191	.3725	.3152	85	85	

APPENDIX 4: STUDY 4

4.1 ETHICAL APPROVAL

Psychology Curriculum Group

REQUEST FOR ETHICAL APPROVAL

No study may proceed until this form has been signed by an authorised person, indicating that ethical approval has been granted.

This form should be accompanied by any other relevant materials, (eg. a copy of the research protocol, questionnaire to be employed, letters to participants/institutions, advertisements or recruiting materials, information sheet for participants¹, consent form², or other.)

Name of principal investigator: ***Jacqueline Meredith***

Name of supervisor/tutor: ***Dr Mark Coulson***

Name(s) of student collaborator(s), if any:

Title of study: *Emotional competence in the Primary years: Perception, empathy, expression and emotion appraisal in mainstream and behaviourally challenged schoolchildren*

Please give a brief description of the nature of the study, including details of the procedure to be employed. Identify the ethical issues involved, particularly in relation to the treatment/experiences of participants, session length, procedures, stimuli, responses, data collection, and the storage and reporting of data.

This study is a continuation of previous testing of emotional competence in 7-12 year old mainstream schoolchildren but involves same age children with behavioural problems.

Having examined perceived emotional competence, emotion attribution and discernment of emotional expression with a large sample of normally-functioning schoolchildren the study now looks for differences and deficits in the profiles of children with Social and Emotional Behavioural Disorder (SEBD). A sample of 20 school children of mixed gender from a school for SEBD children will undergo two administrations to examine their emotional competence.

Each administration will involve two sessions with each child which will comprise previously administered measures – Picture Pack, Friendship Questionnaires and MORPHO, but all in a friendly computer-based format. In addition two well-known validated measures – the State Trait Anxiety Inventory for Children (STAI-C) and the Children's Depression Inventory (CDI) will be administered to screen for test anxiety and depression. The two sessions will be about 30 minutes each for child and comprise one administration. These tests will be repeated approximately three months later to look for changes/consistency over time. Each child will therefore have a total of four sessions.

Due to the age of the children concerned consent will not only be gained from each child prior to testing but full informed parental consent will be gained. Information sheets and consent forms for children and parents are attached. Children will be fully briefed about what they have to do in line with ethical requirements, and their option to discontinue the task at any time will be made clear.

Each session with each child will be conducted by the researcher with the aid of a touch-screen laptop computer. Testing will take place in the child's school in a computer study room adjacent to their classroom with a teacher in close proximity, although not in the room, at all times. All data

from this study will be stored on paper and in Access and Excel databases on computer and transferred into SPSS for analysis. Cases will be identified by ID number only and by age, gender, etc. Participants and families will be reassured that no names will be associated with any records or reports originating from this study.

Because the children involved in this study may be considered vulnerable, every care will be taken to make the sessions enjoyable for the children. The use of computerised interfaces (some interactive) will be more fun and will encourage the children to think about their responses. In addition to teacher preparation a school assembly prior to testing will be devoted to familiarising the children with what they will be doing. This is possible as the majority of students in the school are envisaged to be taking part.

How does the proposed study contribute to knowledge?

This research project has isolated the three major components of emotional knowledge – perception, expression and empathic concern - in a control sample of junior Primary school-children. In addition, appraisal of emotion in body postures and faces is examined. This phase of the study compares the responses of these children with a population of behaviourally challenged children. It is intended that this will identify possible deficiencies in emotional knowledge occurring in this population. In addition computerised versions of standardised tests will be useful for this behavioural population who are often resistant to filling in paper forms, and should provide greater enticement to complete the questionnaires. These computerised versions may prove very useful in future research with SEBD (social, Emotional and Behavioural Disorder) and SEN (Special Educational Needs) children.

2. Could any of the procedures that you are proposing to adopt result in any adverse reactions? ~~YES/NO~~

If “yes”, what precautionary steps are to be taken?

3. Will any form of deception be involved that raises ethical issues? (Most studies in psychology involve a mild degree of deception insofar as participants are unaware of the experimental hypotheses being tested. Deception becomes unethical if participants are likely to feel angry or humiliated when the deception is revealed to them.)

~~YES/NO~~

If participants other than Middlesex University students are to be involved, where do you intend to recruit them?

Participants will be recruited from an Essex residential school for children with social, behavioural and emotional problems under the supervision of the director of the school.

5. Does the study involve:

Clinical populations

~~YES/NO~~

Children (under 16 years)

~~YES/NO~~

Vulnerable adults such as individuals with mental health problems, learning disabilities, prisoners, elderly, young offenders?

~~YES/NO~~

6. How, and from whom, will informed consent be obtained (see *consent guidelines*²)?

From parents and children using consent forms and information sheets (attached).

Will you inform participants of their right to withdraw from the research at any time, without penalty (see *consent guidelines*²)

~~YES/NO~~

Will you provide a full debriefing at the end of the data collection phase
(see debriefing guidelines³)

~~YES~~/NO

Debriefing mainly handled by the school concerned. Please see separate sheet.

Will an opportunity exist to discuss the study with the participants to
monitor any negative effects or misconceptions?
If “yes”, how do you propose to deal with such problems?

~~YES~~/NO

The researcher will not personally fulfil this role, but a teacher will be on hand to explain any misconceptions or questions they have. Please see separate sheet for details.

Under the Data Protection Act, information about a participant is confidential
unless otherwise agreed in advance. Will confidentiality be guaranteed? ~~YES~~/NO
If “yes”, how will this be assured? If “no”, how will participants be warned?

Participants and parents will receive reassurance on information sheets and consent forms that no names will be revealed in connection with this study and that their data will be stored only by research ID number.


(NB: You are not at liberty to publish material taken from your work with individuals without the prior agreement of those individuals).

Are there any ethical issues which concern you about this particular piece
of research, not covered elsewhere on this form?
If “yes” please specify:

~~YES~~/NO

(NB: If “yes” has been responded to any of questions 2,3,5,11 or “no” to any of questions 7-10, a full explanation of the reason should be provided on a separate sheet, and submitted with this form).

I have read the British Psychological Society’s *Ethical Principles for Conducting Research with Human participants*⁴ and believe this proposal to conform with them.

Researcher.......... date17.01.05.....

Signatures of approval:

Supervisor..... date

Ethics Committee..... date
(approval granted for the study to proceed)

^{1,2,3,4} **Guidelines are available from the Ethics page of SOCNET**

REASONS FOR INVOLVEMENT OF CHILDREN UNDER 16 YEARS.

REF:

5. Does the study involve:

Children (under 16 years)

YES/NO

As this study examines emotional knowledge in primary aged school-children, it is necessary to carry out this research with children aged under 16 years.

Full parental consent will be obtained for all participants, along with child consent. Information sheets explaining the study and purpose will be provided to both parents and children.

No names will be used in recording, analysis or publication of the statistics gathered in this study.

REASONS FOR NOT FULLY DEBRIEFING CHILDREN.

REF:

8. Will you provide a full debriefing at the end of the data collection phase

(*see debriefing guidelines*³)

YES/NO

The children will be given a verbal opportunity at the end of each test to say what they thought of it. In addition the child will be given the opportunity to express, by choosing a “smiley/neutral/cross” face icon, whether they liked some of the tests or not, and how easy or difficult they found the task.

There is no deception involved in the tests and it is not thought necessary to acquaint the children with all the underlying aspects of this study. The children will also have been prepared by the teaching staff of their school for the sessions and content of the sessions prior to their taking part.

REASONS FOR NOT DISCUSSING THE STUDY WITH THE PARTICIPANTS

REF:

9. Will an opportunity exist to discuss the study with the participants to monitor any negative effects or misconceptions?

YES/NO

All participants and parents will be given information sheets prior to the study and invited to ask questions beforehand. Participants will be informed of their right to withdraw from the investigation at any time. The children will also be given an opportunity at the end of the tests to say what they thought of it. Staff will be fully briefed by the researcher at a meeting prior to the testing, so that they will be fully acquainted with the study and able to reassure the parents and children, particularly with regard to anonymity, should the occasion arise.

No deception or manipulation of participants is involved it is not thought to be necessary or appropriate to fully discuss the study with the participants. It is not predicted that any negative effects or misconceptions will arise throughout this process.

4.2. CONSENT AND INFORMATION SHEETS

Middlesex University

CHILDREN'S CONSENT FORM

I am happy to take part in the research activities.

Name

.....

School

.....

I understand that my name will not be given to anyone else.

I have read the information sheet.

I know that I don't have to continue if I don't want to.



Signed

.....

Date

.....

Witnessed by member of teaching staff

Signed

.....

Date

.....

RESEARCHER'S STATEMENT

The nature, demands and foreseeable risks of the research were explained to the participant.

Signed by

.....

Date

.....

CHILDREN'S INFORMATION SHEET

Your school has agreed to take part in a research study about feelings and friendships. Here are some questions you might have. As it is important you understand what the research will involve, please ask someone to read this sheet with you. If anything is not clear, or you need more information, please ask.



☺ **Why is this study being done?**

We would like to know more about the feelings of children like you and this is one way for us to find out.

☺ **What will I have to do? What will I be asked about?**

You will complete three sessions on a computer with a series of colourful tasks. Sometimes you will be asked to press a key, sometimes to choose a picture on the screen. You will also be asked whether you liked the tasks or not.

☺ **How long will it take to do this? Where will I do it?**

It should take between 20 and 30 minutes for each session. You will do the activities in your own school, in one of your classrooms.

☺ **What if I change my mind and don't want to carry on?**

You do not have to take part if you don't want to. If start you can stop at any time without giving a reason.

☺ **What does this mean?**

It means that whatever you decide to do is okay. If you change your mind in the middle of an activity, just tell us and you can stop. However, we would like you to finish at least one session, as otherwise we will not be able see how well you can do!

☺ **Will anyone else know what I say?**

Everything you do and say will be kept anonymous and confidential - this means no-one will know it was you.

If you are happy to help with this research, you will be asked to sign a 'consent form' before you start. It says that you have read this sheet and are happy to do the activities.

Thank you for reading this information sheet.

** All proposals for research using human subjects are reviewed by an Ethics Committee before they can proceed. The Middlesex Psychology Department's Ethics Committee have reviewed this proposal. **

EMOTIONAL

LITERACY PROJECT

PARENT CONSENT FORM*CONSENT FOR CHILD TO TAKE PART IN A RESEARCH STUDY BY MIDDLESEX UNIVERSITY*

Your child's school has agreed to help Middlesex University's Emotional Literacy research by allowing your child, along with others, to take part in a series of computer based exercises that are designed to be colourful and fun. Some of these will be interactive and they will be split into three sessions. No names will be associated with any information that is used by Middlesex University.

To show you are happy for your child to take part in these activities please fill in and return this sheet to the school. Thank you.

Name of

Parent:

Name of child:

School:

Head Teacher:

I agree that my child can take part in the research project undertaken by Middlesex University.

I confirm that I have read the information sheet and understand the nature of the research. My child's part in this study has been made clear and I understand that his/her name will not be made public in any way. I also understand that my child can withdraw from the task if he or she is unwilling to continue for any reason.

Signed:

Date



Middlesex
University

RESEARCH INFORMATION SHEET

Emotional Literacy Project



Your child's school has agreed to help with a study through which we hope to improve knowledge about children's understanding of emotions. The study uses a range of computer based activities designed for children aged seven to eleven. For research purposes we will need to know children's ages, gender and dates of birth and reading age, but we do not use any names and the results will be anonymous.

Your child will be asked to respond to a series of pictures or questions – for example the picture shown here, where they will choose from a selection of options regarding what they think the child in the picture might be feeling. There will also be a place for your child to say whether or not they liked the activities.



It should take 30 minutes for each activity session and there will be three sessions in all. Everything your child does will be computer based and fun. They will do this in their school, in a quiet room away from other children.

This research is part of a wider study to gain information about children's emotional understanding. It is important because it will help us to improve life skills and the school environment for all children.

Participation in this activity is not compulsory but we hope you will allow your child to take part. Without families like yourselves we cannot continue our research. Please make sure your child reads the Children's Information Sheet.

Thank you for reading this information sheet.

MIDDLESEX UNIVERSITY – OFFICIAL STATEMENT

Participation in this study is entirely voluntary, and families should not feel under any pressure to participate in the research. Your child does not have to take part in this study, and may withdraw at any time without having to give a reason. The decision whether to take part or not will not affect your family or child in any way.

Declaration of Confidentiality:

All records for this project, whether written materials or computer records, will be kept securely. Participants will be identified by a serial number, and not their names. Where information is analysed for publication, only statistical trends will be reported, and there will be no disclosure of individual or identifiable information.

The research is being conducted under the direction of senior researchers. Should you have any concerns or questions about the research, please feel free to talk to your child's school or contact either member of the research team (Jackie Meredith, Researcher, or Dr. Mark Coulson, Research Supervisor) at:

Middlesex University
School of Health & Social Science
Queensway
Enfield, MIDDLESEX. EN3 4SF

Tel: 020 8411 5420 (Jackie Meredith)
Tel: 020 8411 6290 (Dr. Coulson)

All proposals for research using human participants are reviewed by an Ethics Committee before they can proceed. The Middlesex Psychology Department's Ethics Committee have reviewed and accepted this proposal.

4.3. TOKEN ECONOMY SYSTEM

This document explains the total economy system used by the schools in Study 4. It comes in the form of an explanatory leaflet and is made available to parents of children at the school. It is reported verbatim.

TOKEN ECONOMY SYSTEM

Token economy systems are based in well documented evidence over the last twenty years that show that token reinforcement procedures are effective in maintaining performance. Historically, token economy systems date back to the early Middle Ages. Rewards and exchange were inconsistent and varies. However, the systematic Development did not occur until the mid-'60's. For effectiveness, time and resources must be available and for some people it has seemed more appropriate to depend on the systems such as daily report cards and contracting. It is also important to recognise that the system is for the adult as well as the child. Giving the token means that adults learn to positively reinforce children consistently. Children then do not need to get anxious or demanding in their need for attention. This reduces the child's aggression.

The system has been shown to be effective in improving both social and academic behaviours. The essential parts of a token economy include:

- Tokens themselves
- Determination of required behaviours
- Specification of rules for how tokens are earned and spent
- Specification of backup consequences and their cost
- Method for exchanging tokens for back-up consequences

At ***** School the whole system is based on positive reinforcement. If a child mismanages five minutes, it does not ruin his/her day because s/he can begin again to earn the token in the next ten minutes. The child has a reward of a token within the ten minutes and it is not so much the yellow disc but the social praise and positive attention the child receives. In order to collect and give the tokens the child and adults wear a bumbag as part of the uniform. The children and adults are all actively participating in making learning appropriate social and academic skills positive.

Any token that is earned cannot be taken away but a child may be required to pay to replace any breakages. There is a list of thirty six factors important to the system which is available. All the children know the system and all the ways in which it works. As the children progress through the school and are near to integrating into another school, they will move onto other systems appropriate to the receiving schools.

The tangible elements of the system are as follow:

5 YELLOW TOKENS make a GIANT

5 GIANTS make a big GREEN SAVER

The YELLOW GIANT VOUCHER is for the night time score

The GREEN GIANT VOUCHER is for the total score and a child needs one of these to spend in the TOKEN SHOP.

The children and adults are also involved in the children's individual targets which include recommended handling by the adult to help the child achieve the targets within certain periods of time. The targets are oriented so that the child is successful. Whilst the token economy system provides a structure for adults and children alike and a shared language, the target system is personal to each child

4.4. DESCRIPTORS

Pupil Needs/Difficulties			
	A	B	C
Classroom Behaviour	Usually sustains work activities for less than 10 minutes (or less with younger children) Continual moderate disruptive behaviour in large groups	Usually sustains work activities for less than 10 minutes (or less with younger children) Adult support/strategies needed to keep on task for longer Continual moderate disruptive behaviour in large groups with frequent intense difficult demanding behaviour of short duration (5 – 10 minutes approx.)	Usually sustains work activities for less than 10 minutes (or less with younger children) even where topic/task has been chosen by self Continual moderate disruptive behaviour in large and often in small groups with frequent intense difficult demanding behaviour of short and sometimes longer duration Undertakes tasks only with regular prompting
Emotional Difficulties	Poor self-esteem Difficulty in saying good things about self or work Difficulty in discussing problems that have occurred minor self harm Regularly defaces /loses own work Weekly non-verbal expressions of emotions such as tantrums (younger children), leaving/returning to rooms when upset and/or refusals to speak to others for prolonged periods And/or Irrational fear e.g. of specific activities. School/refusal	Poor self esteem: frequent self deprecating comments normally avoids tasks perceived as difficult maltreats own possessions minor self harm defacement and loss of work Marked difficulty in understanding others feelings Avoids engaging in ordinary classroom activities Between daily and weekly strong non-verbal expressions of emotion including tantrums (younger children), shouting and leaving rooms when upset and/or refusals to speak to others for prolonged periods and/or Irrational fears e.g. of specific activities, school refusal	Poor self esteem: frequent self deprecating comments has few examples of work completed within competence will usually deface and/or lose work that is completed maltreats own possessions Minor self harm: Marked difficulty in understanding others feelings and viewpoint Daily strong non-verbal and verbal expressions of emotion including tantrums (younger children) shouting and leaving rooms or leaving school premises when upset and/or refusals to speak to others for prolonged periods and/or Irrational fears that significantly impede learning
Staff Relationships	Unable to maintain co-operative relationships with a number of the staff for some of the time Weekly or more refuses to undertake a task and/or challenges teacher sanctions or disciplinary interventions Will accept staff intervention without resorting to physical aggression or Frequently seeks social and emotional support for teacher(s) over relatively trivial matters.	Unable to maintain co-operative relationships with most of teaching and non-teaching staff the minority of the time Once per day or more: refuses to undertake a task and/or challenges teacher sanctions or disciplinary interventions Will accept staff intervention without resorting to physical aggression or Dependent on teacher(s) to provide reassurance and emotional support to undertake some everyday activities	Marked difficulties in making and maintaining relationships Relationships tend to be based on short term shared interest (e.g. a game) rather than longer term reciprocal friendships A victim or perpetrator of bullying
Peer Relationships	Uncooperative or withdrawn behaviour that impairs quality of learning for peers Difficulty in making and maintaining friendships Positive peer relationships are few, selective and variable from day to day A victim or perpetrator of bullying	-Marked difficulties in making and maintaining friendships -Peer relationships shift over time with few examples that are relationships shift over time with few examples that are sustained for more than a few weeks -A victim or perpetrator of bullying	Usually is able to work/play co-operatively in a smaller group with close adult prompting and/or supervision Persistent and pervasive difficulties in three or all of the following: greeting people, turn taking, conventions of politeness, 'giving and taking' in group games Tends to play/work alone
Social Competence	Prefers to play/work alone Sometimes but not always able to work/play co-operatively in a group without adult prompting and/or supervision Socially clumsy in some or al of the following: Greeting people Turn taking Conventions of politeness (appropriate in age and situation) Giving and asking in group games	Tends to play/work alone Usually is able to work/play co-operatively in a smaller group with adult prompting and/or supervision Persistent difficulties in 2 or more of the following: greeting people, turn taking, conventions of politeness (appropriate	Usually is able to work/play co-operatively in a smaller group with close adult prompting and/or supervision Persistent and pervasive difficulties in three or all of the following: greeting people, turn taking, conventions of politeness, 'giving and taking' in group games Tends to play/work alone

Pupil Needs/Difficulties			
	D	E	F
Classroom Behaviour	<p>Very poor self esteem</p> <p>Work and possessions are consciously destroyed, self harm such as self tattooing</p> <p>Marked difficulties in understanding others feelings and viewpoints</p> <p>More than daily, strong non-verbal and verbal expressions of emotion including tantrums (younger children) shouting and leaving rooms or leaving school premises when upset and/or refusals to speak to others for prolonged periods</p> <p>and/or</p> <p>Fearful or anxious about one or more situations that has a self evident bearing on the pupils ability to progress through the National Curriculum</p>	<p>Very poor self-esteem, expresses strong emotions which may last for days and be a normal feature of behaviour most of the time.</p> <p>Work and possessions are consciously destroyed.</p> <p>Will self harm.</p> <p>And/or</p> <p>Fearfulness and anxiety have an overwhelming effect on most aspects of the pupil's life</p>	<p>Constant extremes of demanding and unpredictable behaviour that effects the safety of those around them.</p> <ul style="list-style-type: none"> - Is destructive of a positive classroom culture, environment or activities (ethos). - Profoundly challenges authority to avoid engaging in learning
Emotional Difficulties	<p>Usually sustains work activities for less than 10 minutes (or less with younger children) even when topic/task has been chosen by self</p> <p>Continual moderate disruptive behaviour in smaller groups with frequent intense difficult demanding behaviour of long duration (30 minutes)</p> <p>Undertakes tasks only with continual prompting</p>	<p>Constant extremes of very demanding but predictable behaviour that sometimes affects the safety of themselves and/or those around them on a daily basis.</p> <p>Experiences significant difficulties completing work within all areas of the curriculum.</p>	<p>Pupil had a psychiatric, medical or pathologic condition that severely impairs their mental health and functioning which may encompass depression, serious self injury or risk of suicide.</p> <p>Exhibits one of the following; extreme immaturity, arson, violence, criminal behaviour, drug and/or alcohol abuse and an absence of autonomy</p>
Staff Relationships	<p>Unable to maintain co-operative relationships with most staff most of the time</p> <p>More than once per day will challenge teaching staff through refusal to undertake tasks or to self restrain behaviour</p> <p>Sometimes makes a mild physical response toward teaching and/or non teaching staff when behaviour is checked (e.g. push)</p> <p>Very dependent on teacher(s) to provide reassurance and emotional support to undertake some everyday activities</p>	<p>Unable to maintain co-operative relationships with most teaching or non-teaching staff for most of the time.</p> <p>Will routinely resort to physical aggression to staff to resolve conflict.</p> <p>Low regard to almost all adults regardless of status.</p> <p>Or</p> <p>Extraordinarily dependent on adults in many everyday contexts.</p>	<p>Has no understanding of, or regard for social structures and/or relationships</p>
Peer Relationships	<p>Severe difficulties in making and maintaining cooperative relationships</p> <p>Either virtually non communicative with peers or relationships are clearly exploitative (in either direction)</p> <p>A victim or perpetrator of bullying</p>	<p>Severe difficulties in making and maintaining relationships.</p> <p>Either virtually non communicative with peers or relationships are clearly and persistently exploitative (in either direction)</p> <p>A victim or perpetrator of bullying</p>	<p>Unable to engage in relationships due to a lack of understanding, awareness or interest</p>
Social Competence	<p>Tends to play/work alone</p> <p>Requires close supervision and prompting to work/play co-operatively in a smaller group</p> <p>Persistent and pervasive difficulties in three or all of the following: greeting people, turn taking, convention of politeness (appropriate to age and situation), 'giving and taking' in group games</p> <p>Some examples of bizarre behaviour</p>	<p>Tends to work/play alone</p> <ul style="list-style-type: none"> - Requires close supervision to work/play in a small group - Bizarre behaviour regularly evident - Persistent and pervasive difficulties in all of: greeting people, turn taking, conventions of politeness, 'giving and taking' in group situations 	<p>Work or play is restricted by a psychiatric or pathological condition e.g. perseveration, obsessional or passive behaviour.</p> <p>Bizarre behaviour overrides social functioning</p>

4.5. MEREDITH BEHAVIOURAL INDICATOR

Child's Name: _____ Date: _____

This form is to be used as a means of monitoring problem behaviour in children on a regular basis. It is not intended to be used as a diagnostic tool.

Tick the option that best represents the incidence of the following behaviours over the last two weeks:

1. Refuses to do things when requested

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
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2. Impulsive

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
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3. Problems with attention

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
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4. Obsessive questioning or argumentativeness

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

5. Does not accept responsibility for behaviour

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

6. Shows defiance towards adults

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

7. Shows lack of regard for social conventions

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

8. Problems with peer interaction

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

9. Abusive towards others

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

10. Uses obscene language

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

11. Challenges discipline

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

12. Destructive or dangerous behaviour

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

13. Self-harming or attempts to self-harm

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

14. Temper outbursts

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

15. Aggressive

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

Any other aspect of behaviour not mentioned above and causing particular concern with this child:

16.

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

17.

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

18.

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
------------	--------	--------------	--------	-----------------------	------------------	--------------------

19.

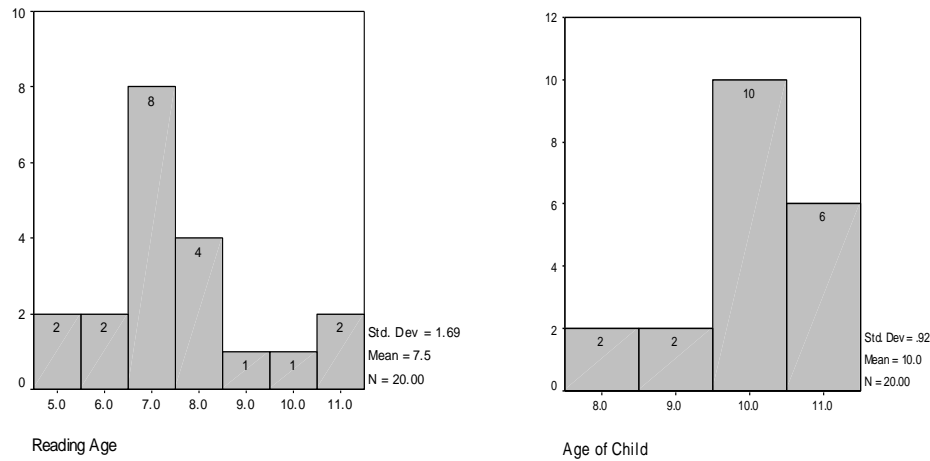
Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
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20.

Not at all	Rarely	Occasionally	Weekly	More than once a week	Almost every day	Every day at least
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4.6. ISSUES REGARDING READING AGE OF SAMPLE

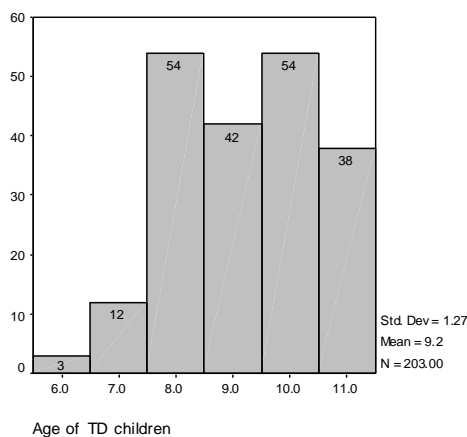
The Figure below shows chronological and reading ages of the 20 children in the BC sample. The highest proportion of children had a reading age of 7 to 8 years and a disproportionate chronological age of 10 or 11.



Reading and Chronological age of Behavioural sample

The range of reading ability was in fact considerable. Although four children had a recorded reading age of six or under, they were mature enough to understand and respond to the measures used in this study (see Study 4 Method section). The mean reading age was 7.52 with a median somewhat lower at 6.92. The age range of the children in the study was 8 to 11, with only two children of eight years old with reading ages of 6.58 and 6.92. The comparative age range of the typically developing sample is

shown in the Figure below. Although the mean chronological age is younger for this TD sample, educationally these children would have been at an advantage as their reading age would be broadly equivalent to their chronological age. It was therefore considered there would be no problems in using this population as a comparative sample.



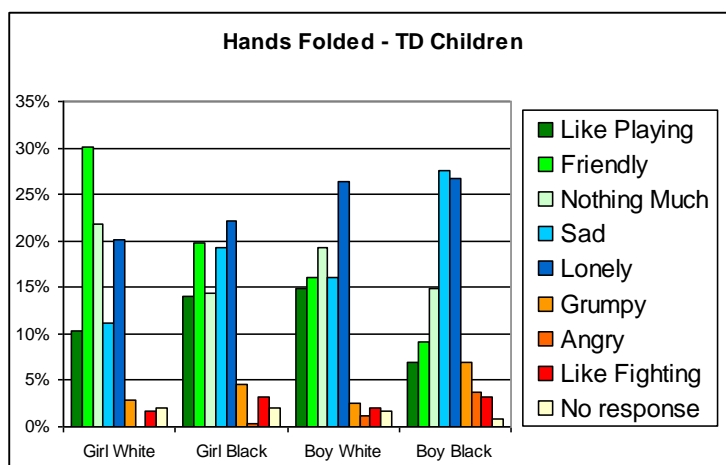
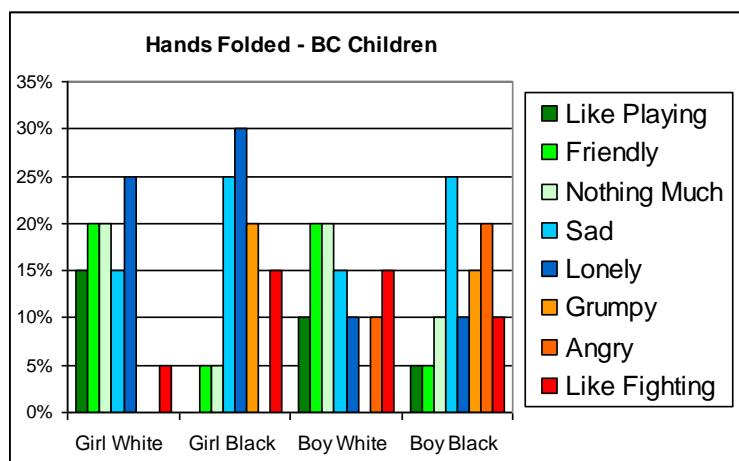
Chronological age of Typically Developing sample

4.7 GRAPHICAL REPRESENTATION OF POSTURES

The figures below present graphical representations of the profile for each of the postures as appraised by typically developing and behaviourally challenged children. Keys are provided with each graph; items on the key from top to bottom run from left to right on the bar chart. Bar chart profiles show clearly the variation in actual choice of affect – a variation which is to some extent hidden by mean scores. Looking at each of the profiles of appraisal for the different body postures trends in choice of affect can be seen.

Hands Folded

Behaviourally challenged children are clearly choosing more confrontational affect ('like fighting', 'angry' and 'grumpy') than typically developing peers.

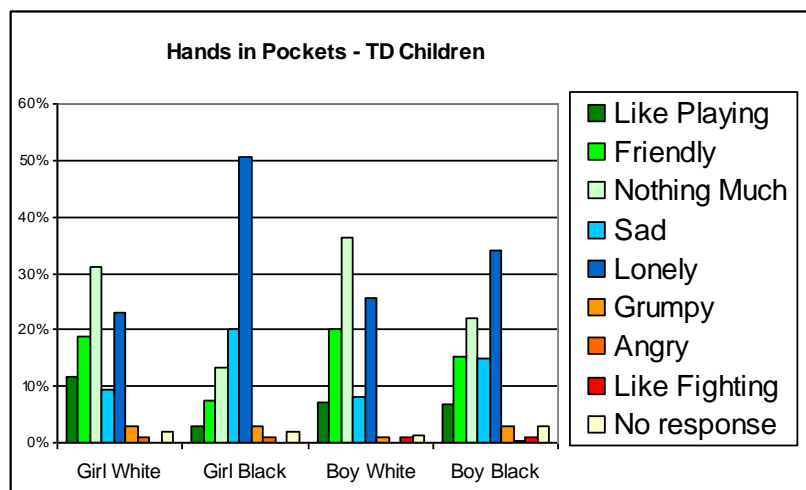
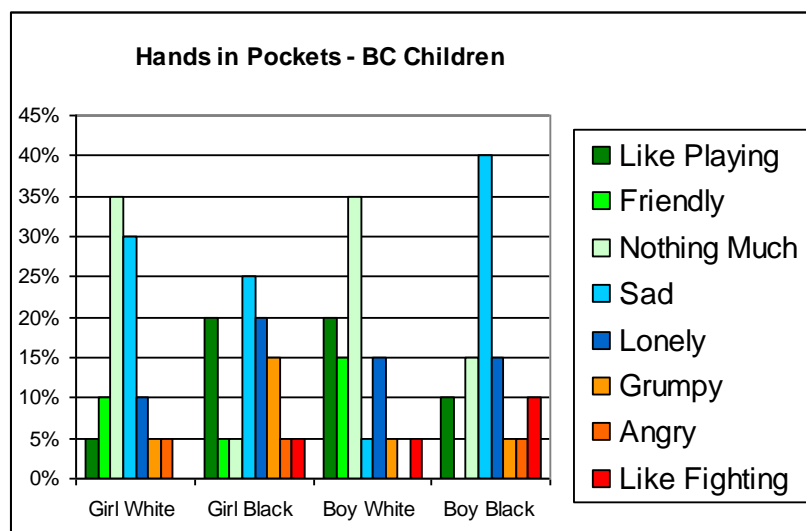


Comparative charts for TD and BC Children – Hands Folded

Immediately noticeable is the appearance of 'like fighting' in the BC sample. Girl Black also has a higher percentage of depressive appraisals, although interestingly Boy White is not appraised as depressively by the BC sample.

Hands in Pockets

TD children are seeing the postural presentations as more pleasant or depressive in affect than anything else. Again there is a higher incidence of confrontational affect in the appraisal of the Behaviourally Challenged children.

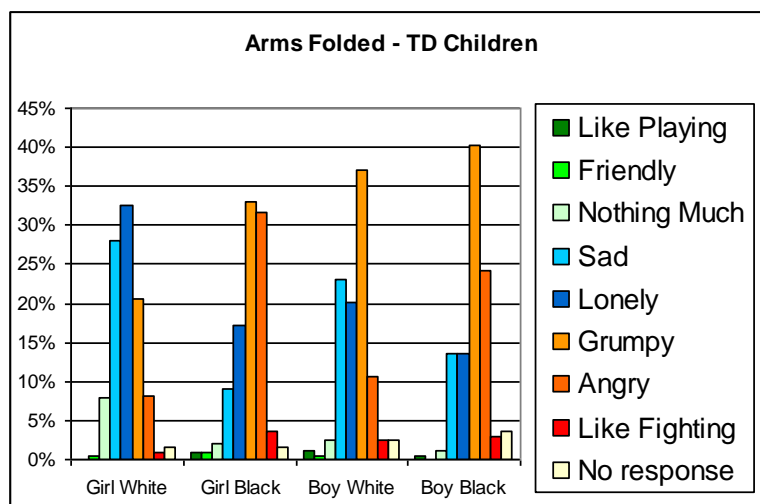
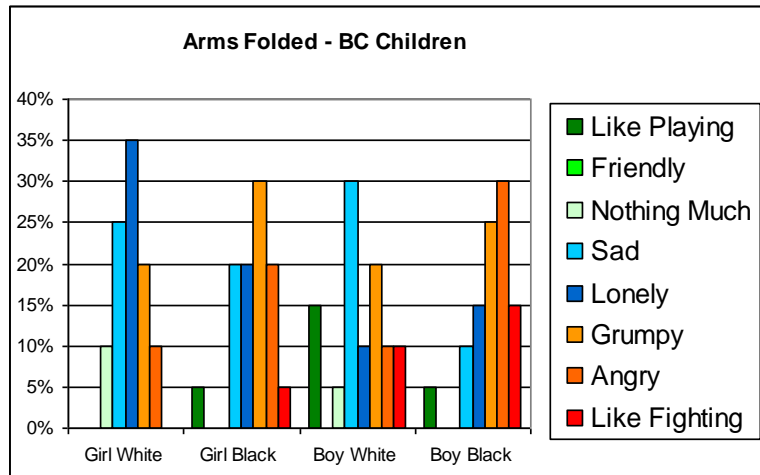


Comparative charts for BC and TD children – Hands Folded

Very few children chose any confrontational affect in the TD sample; in fact Girl Black was rated as 'Friendly' more frequently than was any other affect.

Arms Folded

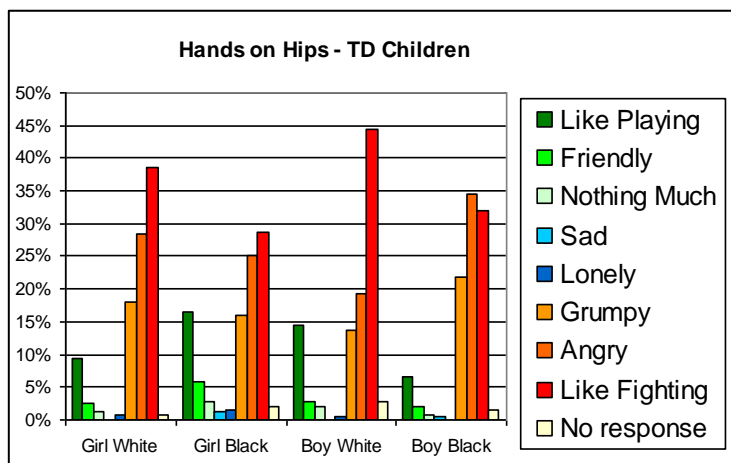
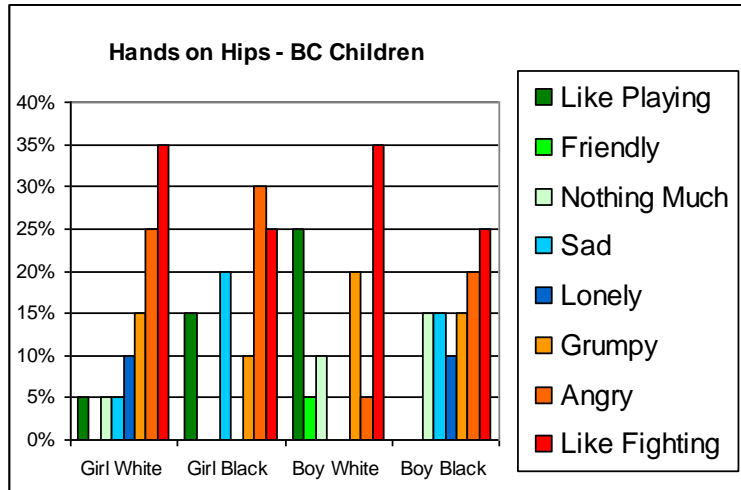
Behaviourally challenged children are showing more occurrences of appraising intentional affect in the 'arms folded' condition: appraisal of 'like fighting' and 'like playing' feature often.



Comparative charts for BC and TD children – Arms Folded

Hands on Hips

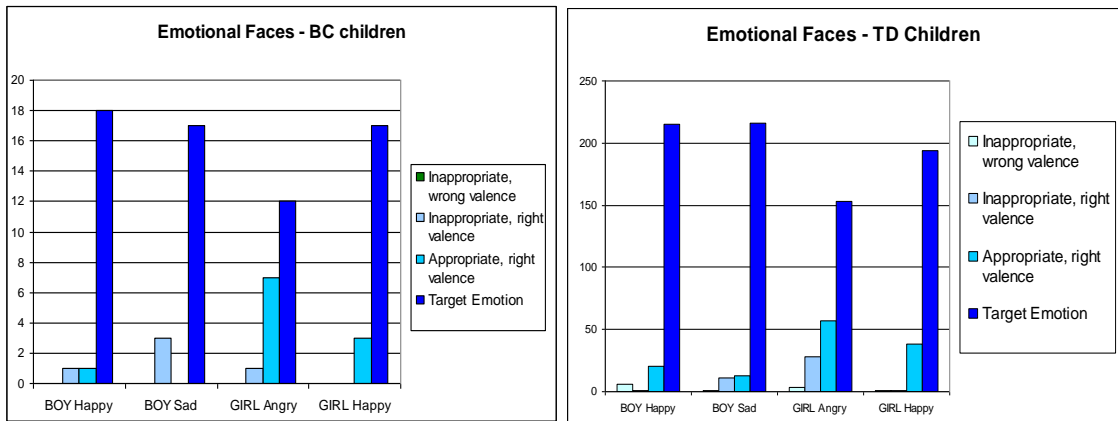
As expected, a considerable majority of children are viewed the 'Hands on Hips' posture as confrontational and having intentional affect. None of the BC children rated Boy Black as 'Like Playing', which occurred in the other status group. Five BC children see the Boy White as 'like playing'.



Comparative charts for BC and TD children – Hands on Hips

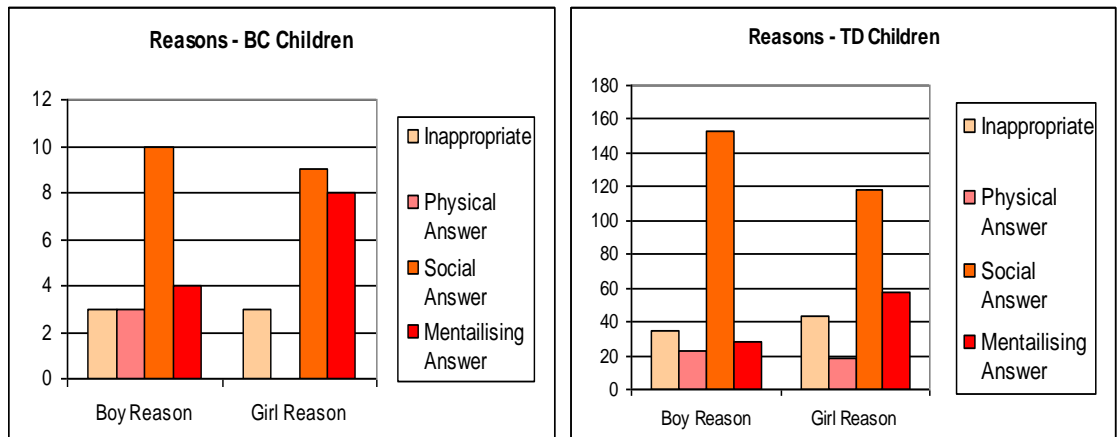
4.8 GRAPHICAL REPRESENTATION OF REASONS FOR EMOTIONAL CHANGE

Figures below show the accuracy of BC and TD children in choosing appropriate emotion:



Appropriateness of Choice in Typical and BC sample s

Figures below show the dispersal of scores for reasons for emotional change for each group:



Reason for Change in Typical sample and BC children

4.9. ANALYSIS: QUESTIONNAIRE PACK

BC sample: correlations of all factors and factors with reading and chronological age:

CORRELATION OF SCALES in BC SAMPLE	Pearson	Sig (2 tailed)
APT-C and Reading Age	-.261	.266
APT-C and Chronological Age	-.293	.211
IECA-C and Reading Age	.348	.133
IECA-C and Chronological Age	.204	.389
EEQ-C and Reading Age	.257	.274
EEQ-C and Chronological Age	.367	.111
Interpersonal Awareness and Reading Age	-.258	.272
Interpersonal Awareness and Chronological Age	-.408	.074
Intrapersonal Awareness and Reading Age	.037	.879
<i>Intrapersonal Awareness and Chronological Age</i>	.824	.000
Affective Empathy and Reading Age	.129	.587
Affective Empathy and Chronological Age	.313	.180
Cognitive Empathy and Reading Age	.254	.280
Cognitive Empathy and Chronological Age	-.183	.439
Overt Expression and Reading Age	.033	.889
Overt Expression and Chronological Age	.189	.424
Intimate Expression and Reading Age	.255	.277
Intimate Expression and Chronological Age	.340	.142
Covert Expression and Reading Age	.281	.231
Covert Expression and Chronological Age	.337	.146

Raw and Standardised Scores for TD and behavioural children for the three questionnaires:

		N	Raw Score Mean	Raw score SD	T Score Mean	T Score SD
APT-C score	TD	203	77.403	8.667	50.000	10.023
	School SEBD	30	79.439	8.582	52.339	9.924
	BC	20	79.580	10.110	52.502	11.691
IECA-R Score	TD	203	60.446	10.561	50.000	10.000
	School SEBD	30	59.274	7.369	52.339	9.924
	BC	20	63.181	9.180	52.502	11.691
EEQ-C Score	TD	202	67.033	10.375	50.000	10.000
	School SEBD	30	66.810	8.051	49.785	7.760
	BC	20	65.500	14.207	48.522	13.694

T scores – Mean Factor Means for all Status Groups

T SCORES	STATUS	N	Mean	Std. Deviation	Minimum	Maximum
Interpersonal Perception	TD	203	50.00	10.00	21.71	71.37
	BESD	30	52.87	11.31	33.40	71.37
	BC	20	52.46	11.70	26.10	71.37
Intrapersonal Perception	TD	203	50.00	10.00	13.19	59.75
	BESD	30	52.76	7.55	30.65	59.75
	BC	20	48.98	12.84	24.83	59.75
Affective Empathy	TD	203	50.00	10.00	24.81	77.77
	BESD	30	47.88	10.61	24.06	62.11
	BC	20	52.17	9.72	37.49	67.03
Cognitive Empathy	TD	203	50.00	10.00	28.81	70.71
	BESD	30	50.41	6.92	36.51	62.16
	BC	20	48.99	10.76	24.98	70.71
Intimate Expression	TD	202	50.00	10.00	26.52	70.69
	BESD	30	51.00	8.16	35.36	64.80
	BC	20	61.43	11.68	40.36	85.41
Overt Expression	TD	202	50.00	10.00	19.85	67.99
	BESD	30	49.27	9.07	23.46	63.17
	BC	20	63.59	18.97	25.15	94.46
Covert Expression	TD	202	50.00	10.00	28.35	83.72
	BESD	30	49.27	8.12	30.40	61.16
	BC	20	62.70	13.17	37.79	89.46

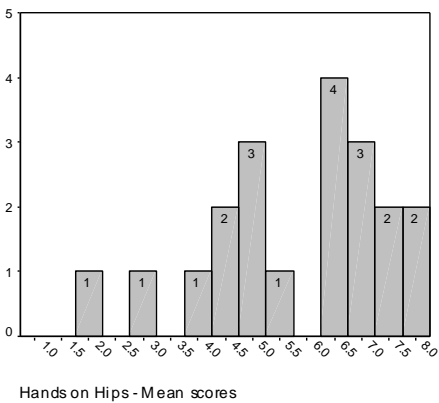
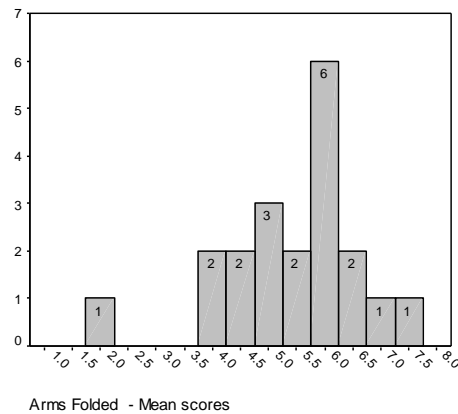
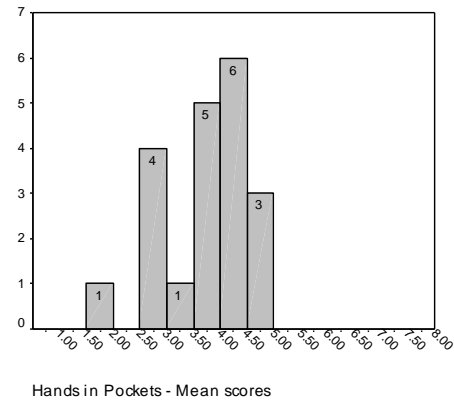
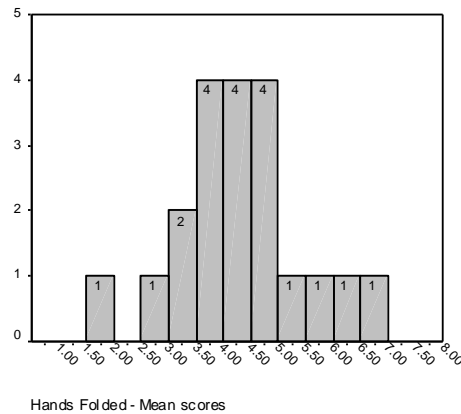
Pearson Correlations within BC sample:

		Reading Age	Age	Year at School	Emotional Competence - T Score
Reading Age	Correlation		.314	.278	.185
	Sig. (2-tailed)		.178	.236	.436
Age	Correlation	.314		.904	.167
	Sig. (2-tailed)	.178		.000	.483
Year at School	Correlation	.278	.904		.280
	Sig. (2-tailed)	.236	.000		.232
Emotional Competence - T Score	Correlation	.185	.167	.280	
	Sig. (2-tailed)	.436	.483	.232	

4.10. ANALYSIS: PICTURE PACK

Emotional Appraisal of Body Postures

Mean scores for the four posture groups shown as bar charts:



8 RAW Categories – Descriptives:

POSTURES – RAW SCORES	Mean (n=20)	Std. Deviation	Minimum	Maximum
All Hands Folded	4.4250	1.1644	2.00	6.75
All Hands in Pockets	3.8250	.7656	2.00	4.75
All Hands on Hips	5.7125	1.6883	1.75	8.00
All Arms Folded	5.2750	1.2245	1.75	7.25

POSTURES – RAW SCORES	Z	Sig. (2-tailed)
All Hands in Pockets vs All Hands Folded	-.757	.449
All Hands on Hips vs All Hands Folded	-12.446	.000
All Arms Folded vs All Hands Folded	-12.843	.000
All Hands on Hips vs All Hands in Pockets	-12.604	.000
All Arms Folded vs All Hands in Pockets	-13.683	.000
All Arms Folded vs All Hands on Hips	-6.033	.000

Difference in rating of postures between BC and TD sample (Mann-Whitney U):

POSTURE	Status	N	Mean Rank	Z	Sig. (2-tailed)
All hands folded	TD	242	127.09	-3.286	.001
	BC	20	184.85		
All hands in pockets	TD	242	129.80	-1.269	.204
	BC	20	152.07		
All hands on hips	TD	242	133.47	-1.469	.142
	BC	20	107.65		
All arms folded	TD	241	131.86	-.644	.520
	BC	20	120.63		

Intentionality and Confrontational Affect:

CHOICE OF AFFECT	Status TD (n=243) BC (n=20)	Mean Rank	Mann-Whitney U	
			Z	Sig (2 tailed)
“Like Playing”	TD	133.80	-1.375	.169
	BC	110.10		
“Like Fighting”	TD	129.24	-2.123	.034
	BC	165.52		
Chose Intentional Appraisal	TD	130.77	-1.425	.154
	BC	146.93		
Confrontational Affect	TD	130.48	-1.145	.252
	BC	150.45		
Depressive Affect	TD	131.14	-.643	.520
	BC	142.40		

Intentionality and posture differences:

POSTURE AND INTENTIONALITY	STATUS	Mean Rank	Z	Sig. (2-tailed)
Hands on Hips - Friendly	TD	131.77	-.217	.828
	BC	134.75		
Hands on Hips - Confrontational	TD	132.89	-.685	.493
	BC	121.20		
Arms Folded - Friendly	TD	130.66	-3.565	.000
	BC	148.25		
Arms Folded - Confrontational	TD	130.44	-2.139	.032
	BC	150.98		
Hands in Pockets - Friendly	TD	130.09	-1.915	.055
	BC	155.18		
Hands in Pockets -Confrontational	TD	130.16	-4.585	.000
	BC	154.30		
Hands Folded - Friendly	TD	133.09	-1.009	.313
	BC	118.75		
Hands Folded -Confrontational	TD	130.09	-3.092	.002
	BC	155.23		

BC children only: no difference in approach dependent on sex or ethnicity of stimulus:

MANN-WHITNEY U	Z	Sig. (2-tailed)	Wilcoxon	
			Z	Sig.
Chose 8 - black stimuli	-1.412	.158	.159	.873
Chose 8 - white stimuli	-.611	.542		
Chose 8 - male stimulus	-1.234	.217	-.966	.334
Chose 8 - female stimulus	-.279	.780		
Intentionality occurrences - female postures	-.033	.973	-1.613	.107
Intentionality occurrences - male postures	-1.725	.084		
Intentionality occurrences - black presentations	-.855	.393	1.209	.227
Intentionality occurrences - white presentations	-1.147	.251		

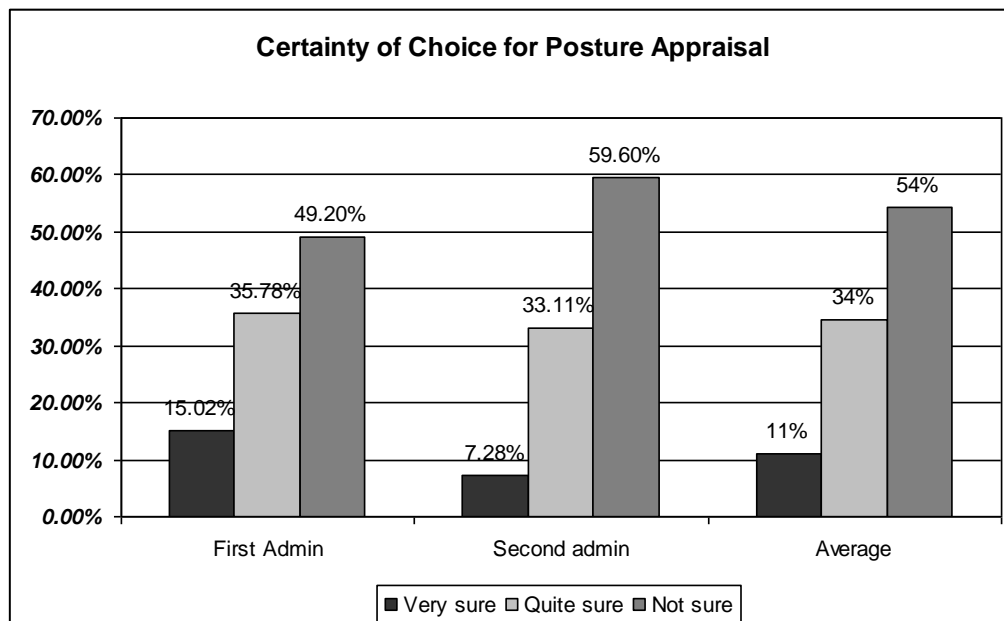
Ratings by BC children of different body postures by sex and ethnicity – 6 category scales:

6 CATEGORY POSTURE, SEX AND ETHNICITY	WILCOXON	
	Z	Sig. (2-tailed)
Girl Black all Postures - Boy Black all Postures	-.615	.538
Girl White all Postures - Boy Black all Postures	-3.146	.002
Boy White all Postures - Boy Black all Postures	-2.869	.004
Girl White all Postures - Girl Black all Postures	-1.884	.060
Boy White all Postures - Girl Black all Postures	-2.423	.015
Boy White all Postures - Girl White all Postures	-1.692	.091

6 CATEGORY POSTURE, SEX AND ETHNICITY	WILCOXON	
	Z	Sig. (2-tailed)
White Postures - Black Postures	-3.144	.002
Girl Postures - Boy Postures	-.503	.615

Certainty of Choice

Certainty of choice in behaviourally challenged children:



Certainty of choice: difference between TD and BC children:

CERTAINTY OF CHOICE	GROUP (TD 243, BC 20)	Mean Rank	Mann Whitney U	
			Z	Sig (2 tailed)
Very Sure	TD	138.85	-5.102	.000
	BC	48.83		
Quite Sure	TD	133.69	-1.258	.208
	BC	111.50		
Not Sure	TD	125.11	-5.344	.000
	BC	215.75		

Reasons for Emotional Change

BC only Boy and Girl Stimuli – Choice of Emotion and Reasons for change:

STIMULI	Mean	Std. Deviation	Wilcoxon	
			Z	Sig (2 tailed)
Emotion - Boy 1	2.85	.49	.849	.396
Emotion - Boy 2	2.70	.73		
Emotion - Girl 1	2.55	.60	1.897	.058
Emotion - Girl 2	2.85	.37		
Girl Reason for Change	2.10	1.02	-1.941	.052
Boy Reason for Change	1.75	.97		

Comparison between BC and TD: Emotions and Reasons for Change:

EMOTION AND REASON FOR CHANGE	Status	Mean Rank	Wilcoxon	
			Z	Sig (2 tailed)
Emotion - Boy 1	TD	131.40	-.138	.890
	BC	132.73		
Emotion - Boy 2	TD	131.54	-.744	.457
	BC	124.53		
Emotion - Girl 1	TD	131.01	-.009	.993
	BC	130.88		
Emotion - Girl 2	TD	127.28	-.254	.800
	BC	130.10		
Boy Reason for Change	TD	129.80	-.169	.866
	BC	132.35		
Girl - Reason for Change	TD	126.62	-1.512	.131
	BC	150.73		

Age effects alone for reasons for change:

EFFECT	SEX OF STIMULUS	F df (1, 271)	Sig.
AGE	Boy Reason for Change	20.278	.000
	Girl - Reason for Change	36.217	.000
STATUS	Boy Reason for Change	.603	.548
	Girl - Reason for Change	.441	.644

4.11. MORPHO

BC Sample Feedback

Difference between feedback categories across administrations:

WILCOXON – FEEDBACK CATEGORIES	Mean	Std. Deviation	Z	Sig. (2-tailed)
Task Evaluation - Time 1	1.4500	.6048	1.667	.096
Task Evaluation - Time 2	1.2000	.4104		
Faces Evaluation - Time 1	1.5000	.6070	-.447	.655
Faces Evaluation – Time 2	1.4500	.6863		
Activity Evaluation - Time 1	1.4000	.5982	-.632	.527
Activity Evaluation - Time 2	1.5000	.6882		

Pearson Correlation between Evaluation administrations:

BETWEEN ADMINISTRATIONS	Activity Evaluation - Time 2	Task Evaluation - Time 2	Faces Evaluation - Time 2
Activity Evaluation - Time 1	.383 (.095)	-.129 (.589)	.179 (.449)
Task Evaluation - Time 1	-.190 (.423)	.254 (.279)	-.133 (.576)
Faces Evaluation - Time 1	.000 (1.000)	.211 (.371)	.695 (.001)

BC and TD comparison

Consistency comparison between BC and TD children – Raw Scores:

Consistency of Response In Emotion transition	Mean TD	Mean BC	Std. Dev TD	Std. Dev BC
Angry : Happy	0.130	-0.150	1.242	1.899
Surprise : Nothing Much	0.177	0.150	1.807	1.309
Scared : Nothing Much	-0.177	0.150	1.649	1.424
Disgust : Nothing Much	0.294	-0.200	1.710	1.436
Angry : Nothing Much	-0.071	-0.200	2.075	1.361
Scared : Surprised	-0.247	0.050	1.792	2.212
Scared : Happy	0.200	0.300	1.510	2.055
Happy : Sad	0.000	0.450	1.504	1.538
Happy : Nothing Much	-0.259	0.200	1.529	1.005
Angry : Sad	-0.035	0.400	1.304	1.353
Sad : Nothing Much	0.247	0.600	1.704	2.186
Angry : Scared	-0.094	0.050	1.532	1.191
Scared : Sad	-0.059	0.150	1.606	1.424

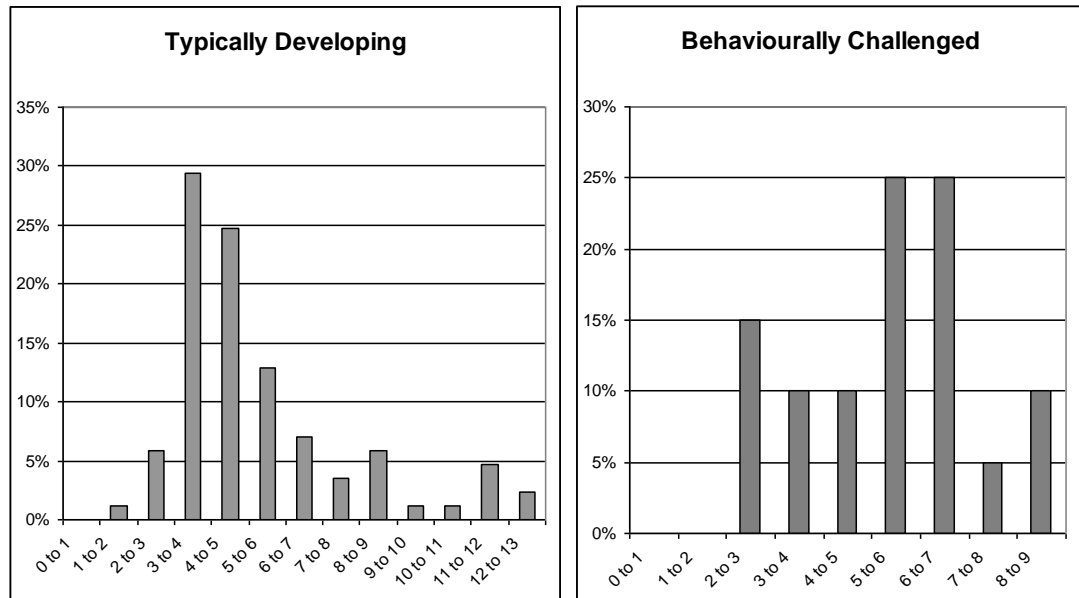
CONSISTENCY: BC Children only - Transition blends, all Descriptives:

Emotional Transitions	Mean	Median	Mode	Std. Deviation	Range of scores	
					Min	Max
Angry to Happy	4.900	5.00	5.00	.8522	3.00	6.00
Happy to Angry	4.950	5.50	6.00	1.7006	.00	7.00
Disgust to Nothing Much	5.700	5.50	5.00	1.5594	3.00	8.00
Nothing Much to Disgust	4.450	4.00	4.00	1.2344	2.00	7.00
Angry to Nothing Much	7.150	7.00	7.00	1.2258	5.00	10.00
Nothing Much to Angry	3.000	3.00	3.00	1.2566	.00	5.00
Surprise to Nothing Much	5.600	6.00	6.00	1.6351	2.00	10.00
Nothing Much to Surprise	4.200	4.00	4.00	1.2397	1.00	6.00
Scared to Nothing Much	6.050	6.00	5.00	1.3563	3.00	8.00
Nothing Much to Scared	3.750	3.50	3.00	1.4464	.00	6.00
Scared to Surprised	5.850	6.00	5.00	1.3485	2.00	8.00
Surprised to Scared	4.200	4.00	3.00	1.9358	2.00	10.00
Scared to Happy	5.650	5.00	5.00	1.7852	3.00	10.00
Happy to Scared	4.650	5.00	5.00	1.7252	.00	7.00
Happy to Sad	5.550	5.00	5.00	1.2344	3.00	8.00
Sad to Happy	4.900	5.00	5.00	1.3338	2.00	8.00
Happy to Nothing Much	6.000	6.00	6.00	1.7472	.00	8.00
Nothing Much to Happy	4.200	4.00	4.00	1.8238	2.00	10.00
Angry to Sad	6.000	6.00	6.00	.9733	4.00	8.00
Sad to Angry	4.400	5.00	5.00	1.1425	3.00	7.00
Sad to Nothing Much	6.100	6.00	5.00	1.2937	5.00	9.00
Nothing Much to Sad	4.500	5.00	5.00	1.8496	.00	9.00
Angry to Scared	5.450	5.50	6.00	.7592	4.00	7.00
Scared to Angry	4.600	5.00	5.00	1.0463	1.00	6.00
Scared to Sad	6.100	6.00	5.00	1.0208	5.00	8.00
Sad to Scared	4.600	5.00	5.00	1.0463	1.00	6.00

Differences in scores within transitional pairs – no significant differences:

PAIRED TRANSITIONS	Mean	Std. Deviation	T (df 19)	Sig. (2- tailed)
Angry to Happy - Happy to Angry	- .1500	1.8994	-.353	.728
Disgust to Nothing Much - Nothing Much to Disgust	.1500	1.3089	.513	.614
Angry to Nothing Much - Nothing Much to Angry	.1500	1.4244	.471	.643
Surprise to Nothing Much - Nothing Much to Surprise	- .2000	1.4364	-.623	.541
Scared to Nothing Much - Nothing Much to Scared	- .2000	1.3611	-.657	.519
Scared to Surprised - Surprised to Scared	.0500	2.2118	.101	.921
Scared to Happy - Happy to Scared	.3000	2.0545	.653	.522
Happy to Sad - Sad to Happy	.4500	1.5381	1.308	.206
Happy to Nothing Much - Nothing Much to Happy	.2000	1.0052	.890	.385
Angry to Sad - Sad to Angry	.4000	1.3534	1.322	.202
Sad to Nothing Much - Nothing Much to Sad	.6000	2.1861	1.227	.235
Angry to Scared - Scared to Angry	.0500	1.1910	.188	.853
Scared to Sad - Sad to Scared	.1500	1.4244	.471	.643

Total Consistency, BC and TD samples:



	N	Mean	Std. Deviation	Minimum	Maximum	ANOVA	
						F (df 1, 103)	Sig.
TD	85	5.2911	2.5434	1.73	12.57	.063	.802
BC	20	5.4438	1.9236	2.24	8.66		

Consistency – differences between TD and BC for all emotional blends:

CONSISTENCY OF TRANSITIONS	F (df 1, 103)	Sig.
Angry:Happy	.657	.419
Disgust:Nothing Much	.004	.951
Angry:Nothing Much	.666	.416
Surprise:Nothing Much	1.429	.235
Scared:Nothing Much	.070	.791
Scared:Surprised	.406	.526
Scared:Happy	.061	.805
Happy:Sad	1.437	.233
Happy:Nothing Much	1.629	.205
Angry:Sad	1.778	.185
Sad:Nothing Much	.621	.433
Angry:Scared	.154	.695
Scared:Sad	.285	.595

Difference between point of transition for BC and TD – three significant items:

POINT OF TRANSITION – DIFFERENCES BETWEEN BC & TD	TD Mean	BC Mean	F (df 1, 103)	Sig.
Scared to Happy	4.9412	5.6500	4.623	.034
Nothing Much to Happy	3.5412	4.2000	3.970	.049
Sad to Nothing Much	5.2118	6.1000	6.853	.010

ANALYSIS – EMOTION TRANSITION

Consistency in different types of presentation – no difference between TD and BC:

PRESENTATIONS	Z	Sig
Emotion/Emotion vs Emotion/Neutral	.403	.687
Negative/Negative vs Positive/Negative	-.897	.370

BC CHILDREN ONLY

Effect of Order of presentation and Type of emotion:

ORDER OF PRESENTATION	Mean	SD	Z	Sig.
Neutral as first presentation, Emotion 2 nd	4.0167	.9672	-3.639	.000
Emotion as first presentation, Neutral 2 nd	6.1000	.7597		
Emotion to Emotion	5.1286	.2863	3.883	.000
Neutral as first presentation, Emotion 2 nd	4.0167	.9672		
Emotion to Emotion	5.1286	.2863	1.308	.191
Emotion to Neutral	5.0583	.2623		

Individual emotion/neutral blends:

WILCOXON	Mean	Std. Deviation	Z	Sig. (2-tailed)
Nothing Much to Disgust	4.4500	1.2344	-2.027	.043
Disgust to Nothing Much	5.7000	1.5594		
Nothing Much to Angry	3.0000	1.2566	-3.946	.000
Angry to Nothing Much	7.1500	1.2258		
Nothing Much to Surprised	4.2000	1.2397	-2.352	.019
Surprise to Nothing Much	5.6000	1.6351		
Nothing Much to Scared	3.7500	1.4464	-3.240	.001
Scared to Nothing Much	6.0500	1.3563		
Nothing Much to Happy	4.2000	1.8238	-2.777	.005
Happy to Nothing Much	6.0000	1.7472		
Nothing Much to Sad	4.5000	1.8496	-2.546	.011
Sad to Nothing Much	6.1000	1.2937		

Positive/negative vs negative/negative presentations – mean scores

BC – Types of Presentation	Mean	SD	Z	Sig.
Positive/Negative transitions	5.0813	.4020	-.897	.370
Negative/Negative transitions	5.1917	.3757		

ANGER AND FEAR STIMULI – BC CHILDREN ONLY

Angry:

BC – ANGER ITEMS	Mean	SD	Z	Sig.
Transitions to Anger, no neutral	4.6500	.7373	-2.911	.004
Transitions from Anger, no neutral	5.4500	.5437		

WILCOXON	Mean	Std. Deviation	Z	Sig. (2-tailed)
Angry to Happy	4.9000	.8522	-.299	.765
Happy to Angry	4.9500	1.7006		
Angry to Sad	6.0000	.9733	-3.145	.002
Sad to Angry	4.4000	1.1425		
Angry to Scared	5.4500	.7592	-2.578	.010
Scared to Angry	4.6000	1.0463		

Angry to neutral blends:

WILCOXON	Mean	Std. Deviation	Z	Sig. (2-tailed)
Angry to Nothing Much	7.1500	1.2258	-3.027	.002
Emotion to Neutral, no anger	5.8900	.9026		
Neutral to Anger	3.0000	1.2566	-3.832	.000
Neutral to Emotion, no anger	4.2200	.9556		

Anger as dominant emotion:

WILCOXON	Z	Sig. (2-tailed)
Nothing Much to Angry - Nothing Much to Disgust	-3.517	.000
Nothing Much to Surprised - Nothing Much to Angry	-3.401	.001
Nothing Much to Scared - Nothing Much to Angry	-2.627	.009
Nothing Much to Happy - Nothing Much to Angry	-2.633	.008
Nothing Much to Sad - Nothing Much to Angry	-2.974	.003

Transitions involving Fear:

WILCOXON	Mean	Std. Deviation	Z	Sig. (2-tailed)
Nothing Much to Scared NEW	3.7500	1.4464	-3.240	.001
Scared to Nothing Much	6.0500	1.3563		
Transitions not including Scared, no neutral	5.1167	.3671	-2.652	.008
Transitions including Scared, no neutral transition	5.7850	.7989		
Transitions away from Scared - no neutral	5.5500	.6366	-2.836	.005
All items towards Scared - no neutral	4.7250	.8025		
Emotion to neutral, no scared	6.1100	.8296	.000	1.000
Scared to Nothing Much	6.0500	1.3563		
Neutral to emotion, no scared	4.0700	.9652	-1.029	.303
Nothing Much to Scared NEW	3.7500	1.4464		

Fear as Dominant:

WILCOXON	Z	Sig. (2-tailed)
Surprised to Scared - Scared to Surprised	-2.605	.009
Happy to Scared - Scared to Happy	-1.300	.194
Scared to Angry - Angry to Scared	-2.578	.010
Sad to Scared - Scared to Sad	-3.332	.001

WILCOXON	Z	Sig. (2-tailed)
Scared to Nothing Much - Angry to Nothing Much	-2.409	.016
Scared to Nothing Much - Surprise to Nothing Much	-.892	.372
Happy to Nothing Much - Scared to Nothing Much	-.080	.936
Sad to Nothing Much - Scared to Nothing Much	-.071	.944
Scared to Nothing Much - Disgust to Nothing Much	-.841	.400

WILCOXON	Z	Sig. (2-tailed)
Nothing Much to Scared - Nothing Much to Disgust	-2.254	.024
Nothing Much to Scared - Nothing Much to Angry	-2.627	.009
Nothing Much to Scared - Nothing Much to Surprised	-1.327	.185
Nothing Much to Happy - Nothing Much to Scared	-.667	.505
Nothing Much to Sad - Nothing Much to Scared	-2.027	.043

BC and TD comparison:

MANN-WHITNEY U	Z	Sig. (2-tailed)
Anger items - mean scores to angry, no neutral transition	-.108	.914
All items towards Scared - no neutral	-.471	.638
Anger items - mean scores from angry, no neutral transition	-1.761	.078
Transitions away from Scared - no neutral	-.811	.417

MANN-WHITNEY U	Z	Sig. (2-tailed)
Angry to Nothing Much	-.898	.369
Nothing Much to Angry	-.306	.760
Scared to Nothing Much	-.695	.487
Nothing Much to Scared	-1.037	.300

Gender of stimulus:

WILCOXON	Z	Sig. (2-tailed)
Mean score all female transitions vs Mean score all male transitions	-1.494	.135

No difference across sample for viewing male and female faces.

4.12 ADDITIONAL ANALYSES

Picture Pack – 2 administrations

Consistency across two administrations in rating of postures:

PRESENTATION	ADMIN	N	Mean Rank	Mean	Std. Deviation	Z	Sig. (2-tailed)
All White Presentations	1	20	19.48	3.8013	.5798	-.297	.767
	2	19	20.55				
All Black Presentations	1	20	18.00	4.4103	.5953	-1.131	.258
	2	19	22.11				
All Boy Postures	1	20	20.33	4.0107	.5947	-.184	.854
	2	19	19.66				
All Girl Postures	1	20	17.40	4.2009	.5737	-1.468	.142
	2	19	22.74				

Accuracy of Facial Emotion and Reasons for change:

	ADMIN	Mean Rank	Chi-Square (df 1)	Sig
BOY_1 (Happy)	1.00	20.15	.026	.873
	2.00	19.84		
BOY_2 (Sad)	1.00	19.08	.978	.323
	2.00	20.97		
BOY REASON	1.00	20.63	.157	.692
	2.00	19.34		
GIRL_1 (Angry)	1.00	23.30	5.243	.022
	2.00	16.53		
GIRL_2 (Happy)	1.00	19.00	.460	.498
	2.00	21.05		
GIRL REASON	1.00	19.38	.146	.703
	2.00	20.66		

Consistency in scoring for intentionality:

Mann-Whitney U	Admin	Mean Rank	Z	Sig.
Intentionality Scores	1.00	20.30	-.170	.865
	2.00	19.68		

Comparison across two administrations of each independent posture:

SEX AND POSTURE	ADMIN 1		ADMIN 2		Wilcoxon	
	Mean	Std. Deviation	Mean	Std. Deviation	Z	Sig. (2-tailed)
BGHF	5.1500	1.5985	4.7368	1.7589	-.376	.707
BGHP	4.1000	2.0749	5.0000	1.4530	-1.025	.305
BGHH	5.6500	2.4554	6.8947	1.6632	-2.509	.012
BGAF	5.4500	1.5720	6.0000	1.2472	-.988	.323
BBHF	5.0500	1.9861	5.6842	2.2865	-.788	.431
BBHP	4.3500	1.8715	4.5263	1.8669	-.344	.731
BBHH	5.8500	1.8432	5.7368	2.0774	-.064	.949
BBAF	6.0000	1.6859	6.0526	1.3112	-.251	.802
WBHF	4.1000	2.3598	3.2632	1.8209	-1.028	.304
WBHP	3.2000	1.8525	3.2105	1.6526	-.604	.546
WBHH	5.0000	2.9736	5.3684	2.6079	-.738	.461
WBAF	4.7000	2.1300	4.9474	1.3112	-.401	.688
WGHF	3.4000	1.7889	4.0000	2.2852	-1.043	.297
WGHP	3.6500	1.3870	3.8421	1.7405	-.339	.735
WHHH	6.3500	1.9270	6.2632	1.8512	.000	1.000
WHAF	4.9500	1.1459	5.6316	1.6059	-1.327	.184

Only 1 significant difference, for Black Girl hands on hips.

6 category ordinal scale, no effect:

ANOVA	F (1, 37)	Sig.
Black Girl Hands Folded 6 scale	.807	.375
Black Girl arms folded 6 scale	2.667	.111
Black Boy hands folded 6 scale	.600	.443
Black Boy hands pockets 6 scale	.057	.812
Black Boy hands hips 6 scale	.104	.749
Black Boy arms folded 6 scale	.222	.640
White Boy hands folded 6 scale	.839	.365
White Boy hands pockets 6 scale	.000	.990
White Boy hands hips 6 scale	.176	.677
White Boy arms folded 6 scale	.510	.480
White Girl hands folded 6 scale	.461	.502
White Girl hands pockets 6 scale	.014	.908
White Girl hands hips 6 scale	.000	.989
White Girl arms folded 6 scale	3.967	.054

No difference in allocation of negative and confrontational appraisals between administrations:

ANOVA	F (df 1, 37)	Sig.
Chose confrontational affect: 6,7,8	1.375	.248
Chose depressive affect: 4,5	.129	.721
Chose highly confrontational affect: 7,8	.185	.669

No significant difference between administrations of each presentation separately:

NON PARAMETRIC	Admin 1		Admin 2		Mann-Whitney U	
	Mean	Std. Deviation	Mean	Std. Deviation	Z	Sig. (2-tailed)
White Girl all posture - 6 scale	3.8875	.6953	4.1140	.6851	-1.020	.308
Black Girl all postures - 6 scale	4.2000	.7889	4.6184	.3852	-1.466	.143
Black Boy all postures - 6 scale	4.3625	.7800	4.4737	.7541	-.185	.853
White Boy all postures - 6 scale	3.6000	.8406	3.6096	.6503	-.127	.899

Pearson	To_ANGER	From_ANGER	No_ANGER	Chose 8_2	Chose 8_1	Chose 678_1
From_ANGER	.492 (.028)					
No_ANGER	.571 (.009)	.301 (.198)				
Chose 8_2	-.097 (.692)	-.110 (.654)	.073 (.767)			
Chose 8_1	.251 (.285)	-.101 (.673)	.094 (.693)	.627 (.004)		
Chose 678_1	.200 (.399)	.384 (.095)	.210 (.375)	.392 (.097)	.441 (.051)	
Chose 678_2	-.280 (.246)	-.068 (.781)	.071 .773	.416 (.076)	-.044 (.857)	.419 (.074)

Anxiety

Measures of dispersal of Trait and State anxiety, showing raw and converted score:

	Mean	Std. Deviation	Minimum	Maximum
State Anxiety Raw Score Admin 1	28.9500	5.1858	20.00	39.00
State Anxiety - T score Admin 1	46.2000	10.1701	27.00	64.00
Trait Anxiety Raw Score	39.0000	7.9140	26.00	53.00
Trait Anxiety - T Score	55.0000	13.0505	35.00	77.00
State Anxiety Raw Score - Admin 2	24.7000	4.3661	20.00	38.00
State Anxiety T Score - Admin 2	37.5500	8.6844	27.00	63.00
State Anxiety Raw Score - Admin 3	23.6842	2.4279	20.00	30.00
State Anxiety T score - Admin 3	37.3158	5.8410	27.00	49.00

Correlations between State and Trait anxiety:

PEARSON (2-tailed)	Trait Anxiety T Score	Z scores for STAIC-S Admin 1	Z Scores for STAIC-S Admin 2
Z scores for STAIC-S Admin 1	.297 (.203)		
Z Scores for STAIC-S Admin 2	.493 (.027)	.476 (.034)	
Z Scores for STAIC-S Admin 3	.124 (.693)	.193 (.414)	-.015 (.951)

T Scores correlations:

Pearson (2 Tailed)	State Anxiety T score - Admin 1	Trait Anxiety T Score	State Anxiety T Score - Admin 2
Trait Anxiety - T Score	.260 (.268)		
State Anxiety T Score - Admin 2	.487 (.030)	.506 (.023)	
State Anxiety T score - Admin 3	.375 (.114)	.080 (.743)	.234 (.334)

Change over administrations:

		Mean	Std. Deviation	Correlation	Sig
Pair 1	State Anxiety Raw Score Admin 1	29.0000	5.3229	.378	.110
	State Anxiety Raw Score - Admin 3	23.6842	2.4279		
Pair 2	State Anxiety Raw Score Admin 1	28.9500	5.1858	.476	.034
	State Anxiety Raw Score - Admin 2	24.7000	4.3661		
Pair 3	State Anxiety Raw Score - Admin 2	24.6316	4.4748	.122	.620
	State Anxiety Raw Score - Admin 3	23.6842	2.4279		

		Paired Differences			
		Mean	Std. Deviation	t (df 19)	Sig. (2-tailed)
Pair 1	State Anxiety - T score Admin 1 - State Anxiety T Score - Admin 2	8.6500	9.6370	4.014	.001
Pair 2	State Anxiety T Score - Admin 2 - State Anxiety T score - Admin 3	.1053	9.4334	.049	.962
Pair 3	State Anxiety - T score Admin 1 - State Anxiety T score - Admin 3	8.9474	9.8741	3.950	.001

		Paired Differences			
		Mean	Std. Deviation	t (df 19)	Sig. (2-tailed)
Pair 1	Z scores for STAIC-S Admin 1 – Z Scores for STAIC-S Admin 2	-9.9999	1.0239	.000	1.000
Pair 2	Z Scores for STAIC-S Admin 2 – Z Scores for STAIC-S Admin 3	.4877	2.6029	.838	.412
Pair 3	Z scores for STAIC-S Admin 1 – Z Scores for STAIC-S Admin 3	.4877	2.4045	.907	.376

QP - Raw scores correlations:

	APT-C Raw Score	IECA-R Raw Score	EEQ-C Raw Score	Trait Anxiety Raw Score
IECA-R Raw Score	.207 (.381)			
EEQ-C Raw Score	-.118 (.621)	.461 (.041)		
Trait Anxiety Raw Score	-.240 (.308)	-.078 (.743)	.410 (.073)	
State Anxiety Raw Score - Admin 2	-.139 (.560)	.146 (.538)	.277 (.236)	.527 (.017)

QP subscales – correlations with Raw scores:

	Pearson	State Anxiety (Admin 1)	Trait Anxiety
IECA-R Affective Empathy	Correlation	.237	.213
	Sig. (2-tailed)	.314	.368
IECA-R Cognitive Empathy	Correlation	-.133	-.396
	Sig. (2-tailed)	.577	.084
EEQ – Intimate Expression	Correlation	.459	.213
	Sig. (2-tailed)	.042	.367
EEQ – Overt Expression	Correlation	.223	.524
	Sig. (2-tailed)	.344	.018
EEQ – Covert Expression	Correlation	.466	.194
	Sig. (2-tailed)	.039	.413
APT-C Interpersonal Perception	Correlation	-.100	-.169
	Sig. (2-tailed)	.675	.475
APT-C Intrapersonal Perception	Correlation	-.458	-.091
	Sig. (2-tailed)	.043	.702

No correlation between anxiety and choice of depressive or confrontational affect:

	State Anxiety Raw Score Admin 1	Trait Anxiety Raw Score	Chose 6,7,8 1 st Admin
Trait Anxiety Raw Score	.304 (.193)		
Chose 6,7,8 – 1 st Admin	.063 (.791)	-.160 (.500)	
Chose 4,5 – 1 st Admin	-.214 (.364)	.025 (.917)	-.485 (.030)

No correlation between MORPHO consistency and Anxiety:

	State Anxiety Raw Score Admin 1	Trait Anxiety Raw Score	State Anxiety Raw Score - Admin 2
Trait Anxiety Raw Score	.304 (.193)		
State Anxiety Raw Score - Admin 2	.476 (.034)	.527 (.017)	
MORPHO Consistency	.067 (.778)	.413 (.071)	.256 (.276)

Depression

Depression and anxiety, admin 1:

Pearson (2-tailed)	Trait Anxiety Raw Score	State Anxiety Raw Score Admin 1	CDI T score Admin 1
State Anxiety Raw Score Admin 1	.304 (.193)		
CDI T score Admin 1	.091 (.704)	.660 (.002)	
Depression Screen Admin 1	.029 (.902)	.678 (.001)	.971 (.000)

Depression and Anxiety, admin 3:

PEARSON (2-tailed)	Trait Anxiety Raw Score	State Anxiety Raw Score - Admin 3	CDI T score Admin 3
State Anxiety Raw Score - Admin 3	.225 (.354)		
CDI T score Admin 3	.021 (.931)	.270 (.263)	
Depression Screen - Admin 3	-.011 (.963)	.311 (.195)	.939 (.000)

No correlation with PP choices for depression on either administration:

PEARSON (2-tailed)	CDI T score Admin 1	Depression Screen Admin 1	Chose 6,7,8 Admin 1
Depression Screen Admin 1	.971 (.000)		
Chose 6,7,8 Admin 1	-.007 (.977)	-.070 (.770)	
Chose 4,5 – Admin 1	-.295 (.207)	-.191 (.420)	-.485 (.030)

PEARSON (2-tailed)	CDI T score Admin 3	Depression Screen Admin 3	Chose 6,7,8 Admin 3
Depression Screen - Admin 3	.939 (.000)		
Chose 6,7,8 Admin 3	.022 (.928)	.044 (.857)	
Chose 4,5 – Admin 3	.259 (.285)	.251 (.300)	-.708 (.001)

Emotional Competency using the Questionnaire Pack:

Pearson Correlation	CDI T score Admin 1	Depression Screen Admin 1
Depression Screen Admin 1	.971 (.000)	
Affective Empathy	.035 (.885)	.147 (.536)
Cognitive Empathy	-.174 (.463)	-.234 (.320)
EEQ Factor 1	.300 (.199)	.344 (.138)
EEQ Factor 2	.062 (.796)	.102 (.668)
EEQ Factor 3	.286 (.221)	.325 (.162)
APT Factor 1	-.215 (.363)	-.133 (.576)
APT Factor 2	-.564 (.010)	-.488 (.029)
APT Factor 2a	-.510 (.022)	-.452 (.045)

MORPHO – no correlation in consistency:

Pearson Correlation	CDI T score Admin 1	Depression Screen Admin 1
Depression Screen Admin 1	.971 (.000)	
Consistency MORPHO	.219 (.354)	.204 (.388)

Behavioural Considerations

Correlation between tokens and measures Admin 1 (QP):

Pearson Correlation	Weekly Tokens Admin 1	Daily tokens - day of test - Admin 1
Daily tokens - day of test - Admin 1	.812 (.000)	-
APT-C T Scores	.033 (.901)	.090 (.721)
IECA T Scores	-.288 (.263)	-.497 (.036)
EEQ-C T Scores	-.035 (.894)	-.142 (.573)
INTIM T	-.011 (.967)	-.087 (.732)
OVERT T	-.005 (.985)	-.058 (.820)
COVERT T	.049 (.851)	-.132 (.602)
INTER T	.100 (.703)	.095 (.707)
INTRA T	-.088 (.738)	.077 (.762)
AFFECT T	-.318 (.213)	-.314 (.204)
COGNIT T	.114 (.662)	-.176 (.484)

Correlation between tokens and anxiety and depression (Admin 1)

Correlations	Weekly Tokens Admin 1	Daily tokens - day of test -Admin 1	CDI T score Admin 1
Daily tokens - day of test - Admin 1	.812 (.000)		
CDI T score Admin 1	-.139 (.596)	-.132 (.601)	
State Anxiety - T score Admin 1	-.042 (.872)	-.067 (.793)	.625 (.003)

Correlation between behaviour and measures Admin 2 (Picture Pack 1st session):

	Weekly Tokens Admin 2	Daily tokens - day of test Admin 2	Trait Anxiety - T Score	State Anxiety T Score - Admin 2	Chose 6,7,8 1 st Admin
Daily tokens - Admin 2	.776 (.000)				
Trait Anxiety - T Score	.098 (.718)	-.253 (.312)			
State Anxiety T Score - Admin 2	-.453 (.078)	-.486 (.041)	.506 (.023)		
Chose 6,7,8 - 1 st Admin	.182 (.500)	.135 (.594)	-.145 (.543)	-.117 (.623)	
Chose 4,5 - 1 st Admin	-.214 (.426)	.081 (.749)	.001 (.999)	.092 (.698)	-.485 (.030)

Correlation between behaviour and measures Admin 3 (Picture Pack 2nd session):

	Weekly Tokens Admin 3	Daily tokens - day of test - Admin 3	State Anxiety T score - Admin 3	CDI T score Admin 3	Chose 6,7,8 2 nd Admin
Daily tokens - Admin 3	.931 (.000)				
State Anxiety T score - Admin 3	-.284 (.286)	-.072 (.791)			
CDI T score Admin 3	-.037 (.893)	-.021 (.939)	.453 (.052)		
Chose 6,7,8 - 2 nd Admin	.473 (.064)	.447 (.082)	-.235 (.332)	.022 (.928)	
Chose 4,5 - 2 nd Admin	-.524 (.037)	-.456 (.076)	.312 (.193)	.259 (.285)	-.708 (.001)

END OF APPENDICES